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Talkeetna Airport Improvements

Phase II

Heliport Relocation Study

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prepared by

CH2MHILL
301 W. Northern Lights Blvd., Suite 601
Anchorage, Alaska 99503
(907) 278-2551
Contact: David R. Coolidge, P.E.

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Exhibit (following text in this report)

Appendix

Table

Abbreviations

AC	Advisory Circular
ADCED	Alaska Department of Community and Economic Development
AGL	above ground level
AIP	Airport Improvement Program
ALP	Airport Layout Plan
AMP	Airport Master Plan
ANCSA	Alaska Native Claims Settlement Act
ARRC	Alaska Railroad Corporation
ARTCC	Air Route Traffic Control Center
ATCT	air traffic control tower
CIRI	Cook Inlet Region, Inc.
DNPP	Denali National Park and Preserve
DNL	Day-Night Noise Level
DOT	U.S. Department of Transportation
ADOT&PF	Alaska Department of Transportation and Public Facilities
EA	Environmental Assessment
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FATO	Final Approach and Takeoff Area

FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FSS	Flight Service Station
ft	foot or feet
GA	general aviation
H&H	Hydrologic and Hydraulic
HPZ	Heliport Protection Zone
HSA	Heliport Safety Area
HRS	Heliport Relocation Study
IFR	instrument flight rules
in.	inches
lbs	pounds
M&O	maintenance and operations
MDA	minimum descent altitude
MHz	megahertz
mi	mile or miles
MSB	Matanuska-Susitna Borough
MSL	mean sea level
NAVAID	navigational aid
NEPA	National Environmental Policy Act
NPIAS	National Plan of Integrated Airport Systems
NPS	National Park Service
ROM	Rough Order of Magnitude

TCC	Talkeetna Community Council
TLOF	Touchdown and Liftoff Area
TVA	Talkeetna Village Airstrip
USA	U.S. Army
VFR	visual flight rules
VOR/DME	Very High Frequency Omnidirectional Radio Range/Distance Measuring Equipment

SECTION 1

Purpose and Need

Talkeetna is located at the junction of the Talkeetna, Chulitna, and Susitna Rivers, 120 miles (mi) north of Anchorage at Mile 226.7 of the Alaska Railroad Corporation (ARRC) tracks (Exhibit 1). (All exhibits are located at the end of text.) The Talkeetna Spur Road runs 14 mi east from the George Parks Highway, at Milepost 98.8. The town lies at approximately 62° 19′ N Latitude, 150° 04′ W Longitude (Section 19, T26N R4W, Seward Meridian). Talkeetna is located within the Matanuska-Susitna Borough (MSB), in the Talkeetna Recording District and encompasses 41.6 square mi of land and 1.4 square mi of water (Appendix A).

In 1997, the Alaska Department of Transportation and Public Facilities (ADOT&PF) and the Federal Aviation Administration (FAA) undertook the *Talkeetna Airport Master Plan* (AMP) (ADOT&PF, 2001a). The AMP serves to guide the development of Talkeetna Airport until 2015. The AMP identifies Talkeetna's long-term aviation needs and ensures that development occurs in accordance with FAA standards and Alaska Aviation System Plan guidelines (ADOT&PF, 1986).

The master planning process involved preparing four stand-alone documents: the *Talkeetna Airport Phase One Report* (ADOT&PF, 1997), the *Talkeetna Airport Draft Environmental Assessment* (EA) (ADOT&PF, 2000), the *Draft Talkeetna Airport Layout Plan* (ALP) (ADOT&PF, 2001b), and the AMP (ADOT&PF, 2001a). These documents outline a phased development program for short-term (0 to 5 years), mid-term (5 to 10 years), and long-term (10 to 20 years) horizons. The draft ALP indicates that the area of the existing heliport is to be developed into commercial lease lots and aircraft parking but does not indicate where a new heliport will be located.

In 2001, ADOT&PF and FAA undertook the Talkeetna Airport Improvements, Phase II project. The project includes a Heliport Relocation Study (HRS), an EA, an ALP update, Hydrologic and Hydraulic (H&H) services, and the final design of the short-term

development program identified in the AMP. This work will ultimately result in the construction of the short-term improvements and the heliport.

The purpose of the HRS is to identify issues to be resolved by the HRS process, to identify and evaluate alternative locations for the proposed heliport, and to recommend preferred alternatives for evaluation in the issues-based EA. This HRS presents background information on the community and conditions at the existing heliport as well as an analysis of helicopter demand and facility requirements for a 15-year planning period ending in 2015.

Another component of the HRS is a detailed noise study. The noise study includes computer modeling of both fixed-wing and helicopter noise data based on existing and forecasted activity calibrated against field measurements of actual noise levels in Talkeetna during periods of peak activity.

The existing heliport is a cleared, gravel-surfaced area south of the existing commercial parking apron. It is unlighted and unmarked and has several deficiencies that require improvement in order to comply with FAA standards and ADOT&PF guidelines (Exhibit 2).

Issues at the existing FAA Talkeetna Heliport include:

- Air traffic and air space conflicts occur between helicopters flying across the runway and fixed-wing aircraft using the runway.
- The separation distance between helicopter landing area and the runway does not meet FAA standards.
- The heliport is located adjacent to the existing commercial apron, subjecting parked aircraft to high winds and flying debris and gravel caused by helicopter rotorwash.
- Helicopters operate adjacent to and over residential areas.
- The heliport is not paved, exacerbating the flying debris issue.
- There is inadequate separation between large helicopter, small helicopter, and fixed-wing operations.

- The heliport lacks lighting.
- The number of transient helicopter parking positions during the peak operating season is insufficient.
- Both fixed-wing and helicopter traffic has been increasing. Fixed-wing traffic is forecasted to double by 2015, and helicopter traffic is forecasted to grow by 70 percent by 2015.

In response to these deficiencies, a list of criteria for heliport relocation was developed through personal interviews with airport users, public and agency meetings, and review of the AMP. Copies of the documentation collected while preparing this report are included in Appendix A. The purpose of the heliport relocation is as follows:

- Redirect helicopter traffic away from parked and taxiing fixed-wing aircraft.
- Provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015.
- Redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the Talkeetna Village Airstrip (TVA).
- Be compatible with proposed and future development shown on the draft ALP.
- Comply with FAA design standards to the extent possible.

SECTION 2

Inventory of Existing Conditions

The inventory of existing conditions provides a record of baseline conditions at and in the vicinity of Talkeetna Airport. This inventory organizes background information relevant to the project, with specific emphasis on information that affects heliport development. The inventory draws from existing information in the *Phase One Report* (ADOT&PF, 1997), the draft EA (ADOT&PF, 2000), and the draft ALP (ADOT&PF, 2001b). Specific information regarding helicopter operations was recently collected and added to prepare this section.

2.1 Social and Cultural

"Talkeetna" is an Indian word meaning "where the rivers join." Originally the site of a Tanaina Indian village, Talkeetna was established as a mining town and trading post in 1896. A gold rush to the Susitna River brought prospectors to the area. By 1910 Talkeetna had become a riverboat steamer station. In 1915, Talkeetna was chosen as the site for the Alaska Engineering Commission, who would build the Alaska Railroad, and the community population peaked near 1,000 residents. World War I and completion of the railroad in 1919 caused a dramatic population decline. A portion of the original 1918 townsite is recognized as the Talkeetna Historic District and was listed on the National Register of Historic Places in April 1995. There are no historic landmarks in the Talkeetna Historic District.

2.2 Demographic

The Bureau of Census records from 2000 (Alaska Department of Community and Economic Development [ADCED], 2001) indicate that Talkeetna's population is mostly Caucasian. In 2000 the population was 772, with 679 of those listed as Caucasian, 29 as Alaska Native, 1 as Asian, 10 as other race, and 53 as "two or more races" (Appendix A).

2.3 Economic

Talkeetna is known for recreational fishing, hunting, boating, lodging, flightseeing, skiing, and dog mushing. Most of Talkeetna's businesses depend upon and support these activities. Talkeetna serves as a takeoff point for fishing and flightseeing trips and as a staging area for Mount McKinley climbing expeditions (Appendix A). Talkeetna's cash economy is largely dependent on these tourism and outdoor recreational activities. ADCED classifies many of the businesses in Talkeetna as amusement and recreation, air transportation, scenic and sightseeing transportation, independent artists, writers and performers, fishing guides, and retail stores.

Talkeetna Airport serves as a base for air taxi operators, helicopters, outfitters, and related services. Numerous air taxis provide transport to the Kahiltna Glacier Base Camp for those climbing Mount McKinley. The Talkeetna heliport also serves as the seasonal base of operations for the U.S. National Park Service (NPS) and the U.S. Army (USA) to support helicopter search and rescue missions in Denali National Park and Preserve (DNPP).

Twelve Talkeetna residents hold commercial fishing permits (Appendix A).

2.3.1 Infrastructure

Talkeetna is accessible by Talkeetna Spur Road, which runs 14 mi east from the George Parks Highway, by the ARRC, and by air. It is a transportation center for tourists visiting DNPP and the nearby Alaska Range mountains.

The majority of Talkeetna residents have individual wells, septic tanks, and complete plumbing. A piped water and sewer system is maintained by the Talkeetna Water & Wastewater Utility. The high school operates its own water system. An existing sewage lagoon is located 1.0 mi north of downtown Talkeetna. Other public utilities are provided by the Matanuska Electric Association and the Matanuska Telephone Association. There is no active landfill at or near Talkeetna.

2.4 Political and Legal

2.4.1 Local Government

Talkeetna is not incorporated as a municipality. The Talkeetna Community Council (TCC) is recognized by the MSB as the official rule making body for Talkeetna, with the Talkeetna Chamber of Commerce as an active civic organization. During 1998 and again in 2000, the community petitioned the ADCED Division of Community and Business Development's Local Boundary Commission for incorporation as a home-rule city. During 2002, general public voting did not support incorporation.

Cook Inlet Region, Inc. (CIRI) is the regional Native corporation under the Alaska Native Claims Settlement Act (ANCSA); however, Talkeetna was not included in ANCSA and is not federally recognized as a Native village. There is no separate village corporation for Talkeetna.

2.4.2 Land Use and Land Status

The State of Alaska owns the majority of the land in the Talkeetna area, totaling approximately 200,000 acres. The MSB owns approximately 18,000 acres of land, which is primarily dedicated to recreational purposes. CIRI owns approximately 6,700 acres in the area. The airport property consists of approximately 670 acres. The remaining lands are privately owned.

The MSB has established land-use policies for the Talkeetna area. While the airport and lands surrounding the airport are not formally zoned, there is a process within the MSB for designating the use of land intended for development. The MSB recognizes the TCC as the local advisory body for planning and land-use issues.

Land use and land status in and around Talkeetna are shown in Exhibit 3. Land use in the area adjacent to Talkeetna Airport includes residential, commercial, and undeveloped areas. Residential land use in the Talkeetna area is predominantly single-family, low-density housing.

Land on the west side of the airport is developed for both residential and commercial uses and is commonly referred to as East Talkeetna. The Talkeetna town site lies farther west of the ARRC tracks. This area comprises the historic area of old Talkeetna and the majority of the tourist-oriented businesses, such as restaurants, lodging, and gift shops.

Land on the north side of the airport is privately owned and remains largely undeveloped. There are scattered residential units north of the airport, between the airport property and the Talkeetna River. The Talkeetna Alaskan Lodge is located southeast of the airport. South of the airport there is very little development between the Airport and the Talkeetna Spur Road. Along the southwest side of the airport, west of the ARRC tracks, are the Talkeetna Library, Talkeetna Elementary School, a restaurant, a service station, and some residential buildings. Trails in the vicinity of Talkeetna that are approved by the MSB for both motorized and nonmotorized are shown on Exhibit 3.

2.4.3 Community Development Plans

- Several MSB development plans have been completed to guide growth in the Talkeetna area. These include:
- *Draft Talkeetna Community and Tourism Plan* (TCC, 2002)
- *Talkeetna Comprehensive Plan* (MSB, 1999a)
- *Christiansen Lake: Lake Management Plan* (MSB, 1999b)
- *Matanuska-Susitna Borough Comprehensive Development Plan* (MSB, 1970)
- *Comprehensive Development Plan: Transportation* (MSB, 1984a)
- *Comprehensive Development Plan: Public Facilities* (MSB, 1984b)
- *Matanuska-Susitna Borough Coastal Management Plan* (MSB, 1984)
- *Multiple Use Forest Management Program* (MSB, 1990)
- *Susitna Basin Recreation Rivers Management Plan* (MSB, 1991)

The *Talkeetna Comprehensive Plan* contains several recommendations related to Talkeetna Airport. These recommendations are:

- Land at Talkeetna Airport should be reserved for airport-related uses only so that the continued efficiency of the airport can be maintained.
- A float/ski strip parallel to Runway 18/36 should be considered.

- Fixed-wing aircraft and helicopters should be rerouted to minimize noise impacts on the community.

2.5 Natural Conditions

This section provides an overview of the environmental conditions in the vicinity of the Talkeetna Airport. This analysis is not intended to fulfill the requirements of the National Environmental Policy Act (NEPA). Prior to the actual heliport relocation, an EA prepared in accordance with FAA Orders 5050.4A (U.S. Department of Transportation [DOT], 1985) and 1050.1D (DOT, 1986a) must be prepared. The EA will result in either a finding of no significant impact or the decision to prepare an environmental impact statement.

2.5.1 Topography

Talkeetna is located in the Susitna River Basin, bounded by the Alaska Range mountains to the north and west, the Talkeetna Mountains on the east, and Cook Inlet on the south. Talkeetna and Talkeetna Airport are located on a broad abandoned floodplain.

The Susitna River Basin is characterized by rolling hills interspersed with swamps, bogs, lakes, and streams. Talkeetna is located at the 345-foot (ft) elevation. Elevations gradually increase to the 1,000-ft elevation 5 to 7 mi from the community along a northeast to southwest direction. The Bartlett Hills, located about 5 mi southeast of Talkeetna, rise to an elevation of slightly more than 1,000 ft. Farther east of Talkeetna, the foothills of the Talkeetna Mountains rise from 1,000 to 2,000 ft in a north-south line. Beyond this, the Talkeetna Mountains become much more rugged, with peaks ranging form 5,000 to 6,000 ft.

2.5.2 Geology and Soils

Talkeetna is located at the base of the western foothills of the Talkeetna Mountains. The region is bound to the north and east by tertiary to cretaceous intrusive and marine sedimentary rocks and was subjected to a series of glacial advances. The region is seismically active.

The community is situated on a broad abandoned floodplain below the confluence of the Talkeetna and Susitna Rivers. The site lies on relatively level terrain between the active

channel of the Susitna River and low hills of to the east. The floodplain is generally characterized by slightly elevated, well-drained alluvial terraces that are intersected by low, broad, flat, poorly drained channels. No bedrock is exposed within the immediate vicinity of Talkeetna Airport.

The typical soil profile for the elevated alluvial terraces is approximately 4 inches (in.) of organic material over 2 to 2.5 ft of moist, nonplastic silt. The silt is underlain by compact-to-dense sandy gravel with relatively few fines. The depth of the base gravel is at least 21 ft. The water table is typically encountered at depths greater than 5 ft. The undisturbed lowland areas adjacent to the terrace deposits have a similar soil profile to the upland areas, with the exception that the water table is typically within a few feet of the surface and soils near the surface are soft. Recent geotechnical investigations for this project discovered the presence of relic permafrost in some of the lowland areas.

2.5.3 Vegetation

The land surrounding Talkeetna Airport consists of interspersed upland habitats and wetland areas.

The upland vegetation communities include:

- Bottomland spruce/hardwood (white spruce, balsam poplar, cottonwood, and tall shrubs)
- Mixed birch/hardwood (white spruce, paper birch, aspen, and black spruce)
- Lowland black spruce/hardwood (black spruce, aspen, cottonwood, poplar, and tall shrubs)

The mixed birch/hardwood community dominates the upland vegetation in the immediate area surrounding Talkeetna Airport. This forested habitat is commonly found on level to nearly level floodplains and low-level river terraces within the Susitna River watershed. This community is locally mixed with black cottonwood, balsam poplar, paper birch, and quaking aspen.

2.5.4 Wetlands

Three general types of wetland areas exist in the vicinity of the Talkeetna Airport: palustrine, lacustrine, and riverine. The palustrine wetland area is the most widespread and can be found adjacent to Twister Creek on the southern portion of the airport property. Twister Creek and the Susitna River have been classified as riverine wetland areas. One lacustrine wetland area has been identified at a flooded gravel pit north of the existing runway. Wetlands in the vicinity of Talkeetna Airport are shown on Exhibit 4.

2.5.5 Fish and Wildlife

The Susitna River provides both spawning and rearing habitat for five species of Pacific Salmon: chinook, coho, chum, sockeye, and pink. These salmon migrate from the river to Cook Inlet and comprise a significant portion of the salmon harvest each year. Resident species found in the Susitna River drainage include lake trout, rainbow trout, arctic grayling, burbot, Dolly Varden, and round whitefish. The Talkeetna River is also an important fish habitat, containing both anadromous and resident species. Adult coho salmon are present throughout the main channel of Twister Creek although juvenile coho salmon have not been observed in this creek. However, still water in the wetland area paralleling the creek is likely used for rearing.

Several types of mammals can be found near Talkeetna Airport. The larger mammals include moose, bears, wolves, coyotes, and red foxes. Smaller mammals include beavers, lynx, martens, minks, muskrats, river otters, weasels, porcupines, snowshoe hares, and red squirrels. Both grizzly and black bears can be found along the banks of the Talkeetna and Susitna rivers, as well as the lower portion of Twister Creek when they search for salmon during the summer months. Beavers reside in the Twister Creek wetlands complex.

Bird species including ducks, geese, raptors, passerines, spruce grouse, and willow ptarmigan inhabit the area adjacent to the Talkeetna Airport. A number of bald eagle nests have historically been observed near the confluence of the Susitna and Talkeetna Rivers.

2.5.6 Historic and Archaeological Sites

In the early part of the Twentieth Century, Talkeetna was a supply point for the railroad and the Alaska Road Commission, as well as for trapping and mining activities in the area. The NPS placed the Talkeetna Historic District on the National Register of Historic Places in April 1993 (ADOT&PF, 2000). Included in the district are 13 buildings built between 1919 and 1939 and the TVA built in 1938. No historic, cultural, architectural, or archeological resources have been identified at Talkeetna Airport.

2.5.7 Water and Hydrology

The entire town site of Talkeetna is located in an active floodplain. This floodplain is caused by the convergence of the Susitna, Talkeetna, and Chulitna Rivers near the town site. The Susitna River has a length of about 200 mi and a drainage area of about 7,100,000 acres upriver from Talkeetna. The Susitna River measures approximately 1 mi wide at Talkeetna. The Talkeetna River is about 80 mi long and has a total drainage area of approximately 1,300,000 acres. The Talkeetna River is nearly 900 ft wide at its confluence with the Susitna River.

2.5.8 Floodplains

The existing Flood Insurance Rate Map (FIRM) for Talkeetna, published by the Federal Emergency Management Agency (FEMA), indicates that most of the land occupied by the Talkeetna Airport is within the 100-year floodplain of the Susitna and Talkeetna rivers.

The Talkeetna Airport Improvements, Phase II Hydrologic/Hydraulic Assessment Incomplete Draft (ADOT&PF, 2001a) is a detailed study that better defines the limits and elevations of flood waters during the 100-year flood. The results of the study indicate that East Talkeetna and almost all of the airport property are inundated during the 100-year flood (Exhibit 5).

The purpose of the Hydrologic/Hydraulic Assessment is to ensure that development at Talkeetna Airport proceeds according to federal, state, and local requirements. The H&H study will likely result in FEMA revising the FIRM for Talkeetna.

2.5.9 Meteorological Data

Talkeetna weather is considered moderate by Alaskan standards. It is located within a transitional climate zone, influenced by both the maritime climate zone from the coastal area to the south and the arctic climate zone from the north, with distinctive continental characteristics during winter.

The temperature extremes range from -40 degrees Fahrenheit (°F) during winter to 90°F during summer. The average annual precipitation is 29 in., with an average annual snowfall of 102 in. The wettest season is late summer, between August and September, caused by major storm activity in the eastern Bering Sea and Gulf of Alaska conflicting with the cooler temperatures from the northern continental areas. Precipitation is generally in the form of light rain, mist, or snow.

2.5.10 Winds

The predominant winds at Talkeetna Airport come from the south in summer and the north in winter. Winds are less than 10 knots 94.1 percent of the time. Winds greater than 10 knots occur from the north approximately 4.5 percent of the time and from the south approximately 1.2 percent of the time, with a small fraction of those winds exceeding 16 knots. The remaining 0.2 percent of observations cannot be grouped into significant wind speed and direction categories. These data are summarized on the wind rose for the Talkeetna Airport (Appendix B).

2.5.11 Noise

FAA Order 5050.4a establishes criteria for noise evaluations at airports. While not required by this criteria, a detailed noise study has been completed for both the existing and future conditions at Talkeetna Airport. This study is located in Appendix C.

2.6 Aviation Facilities

Four facilities in the Talkeetna area serve aircraft operations. The primary airport in the area is Talkeetna Airport, which is owned and operated by ADOT&PF. It is located approximately 1 mi east of downtown Talkeetna. The TVA, a small, unpaved runway, is

located in downtown Talkeetna. In addition, Christiansen Lake, located 5 mi southeast of Talkeetna Airport, and Fish Lake, located 5 mi south-southeast of Talkeetna Airport, support floatplane operations.

2.6.1 Talkeetna Airport

Talkeetna Airport has one 3,500-ft-long by 75-ft-wide runway aligned 18/36, as well as a full length parallel taxiway (Exhibit 6). One existing commercial apron is adjacent to several lease lots with developed hangar facilities. A variety of aircraft repair and maintenance services are available. The existing maintenance and operations (M&O) facility located near the northwest end of the runway houses equipment and provides office space for personnel. ADOT&PF provides maintenance staff. An aircraft rescue and fire fighting facility is not present at Talkeetna Airport.

The runway at Talkeetna Airport is equipped with medium-intensity runway lights. Medium-intensity taxiway edge lighting is also installed along both sides of the parallel taxiway as well as the outer edge of the commercial apron. The airport is not equipped with an approach lighting system, but runway threshold lights are installed. Runway 18/36 has pilot-activated, visual-approach slope indicators. Several nonprecision instrument approach procedures are published for Talkeetna Airport. It does not have an air traffic control tower (ATCT).

2.6.2 Talkeetna Heliport

An existing heliport and helicopter parking areas are located at Talkeetna Airport, immediately south of the existing commercial apron (Exhibit 6). The heliport is approximately 480 ft long and 85 ft wide and has a gravel surface. It accommodates up to three CH-47 Chinooks and two smaller helicopters, such as the Bell 206 Jet Ranger or the Eurocopter 315 Lama. The existing heliport lacks lighting and other navigational aids (NAVAIDs). No dedicated facilities currently exist for passenger holding, ground access, maintenance, or automobile parking. The NPS and ERA Helicopters have traditionally held seasonal lease lots near the existing heliport. The airport entrance roadway provides vehicle access to the heliport from Second Avenue. Table 1 summarizes the existing heliport facilities at Talkeetna.

TABLE 1
Existing Heliport Facilities

Design Element	Existing Conditions
Heliport length	480 feet[a]
Heliport width	85 feet[a]
Heliport surface	Gravel[b]
Lighting	None[a]
Apron	None[b]
Equipment building	Talkeetna Airport Maintenance
Terminal	None[b]
Service access	Gravel road to Second Avenue[b]

[a] Alaska Supplement
[b] Visual Inspection

2.6.3 Talkeetna Village Airstrip

The TVA, a small, unpaved runway, is located about one mile west of Talkeetna Airport, in downtown Talkeetna. According to the *Phase One Report*, it is 1,575 ft long by 30 ft wide. The U.S. Bureau of Land Management owns part of the airstrip, and the remained of the airstrip is on private property. The TVA supports a limited number of single-engine general aviation (GA) aircraft operations. According to the *Phase One Report*, there are usually five fixed-wing aircraft based year-round at the TVA. This number increases slightly in the summer.

2.6.4 Floatplane Facilities

Christiansen Lake is located approximately 1 mi southeast of Talkeetna Airport. It is used as a base for both GA and commercial floatplane operations. It is not under the control of ADOT&PF. Private homes and an MSB park are located along the lake shore. The longest reach on the lake, about 4,000 ft, is the predominant direction used by the floatplanes. The FAA's Alaska Supplement (DOT, 2000a) recommends that aircraft operations to and from Christiansen Lake remain east of the lake.

Fish Lake is located approximately 5 mi south-southeast of Talkeetna Airport and is also used for floatplane operations although its primary use is by GA operators who have

residences adjacent to the lake. Like Christiansen Lake, Fish Lake is not controlled by ADOT&PF.

2.6.5 Visual Flight Rules Traffic Patterns

Three airports handle visual flight rules (VFR) traffic in the immediate vicinity of Talkeetna Airport: Talkeetna Airport, Christiansen Lake, and the private TVA. Standard VFR traffic patterns and other airspace standards are outlined in FAA Order 7400.2E, *Procedures for Handling Airspace Matters* (DOT, 2001).

Traffic pattern airspace dimensions depend upon the aircraft approach category of the most demanding aircraft using the airport. The aircraft approach category is a grouping of aircraft based on 1.3 times their stall speed in their landing configuration at the maximum certified landing weight. The most demanding aircraft using Talkeetna Airport fall within approach category B, which includes aircraft with stall speeds of at least 91 but less than 121 knots. The most demanding aircraft using both Christiansen Lake and the TVA fall within approach category A, which includes aircraft with stall speeds below 91 knots. Fixed-wing aircraft traffic patterns are usually flown from 600 ft above ground level (AGL) to 1,000 ft AGL.

The traffic pattern airspace for Talkeetna Airport, Christiansen Lake, and the TVA are shown in Exhibit 7 in accordance with Order 7400.2E and information provided by the Talkeetna Flight Service Station (FSS) staff (Appendix A). The Alaska Supplement recommends that aircraft operations from Christiansen Lake remain east of the lake. Therefore, the traffic pattern is shown only to the east of Christiansen Lake. Pilots arriving and departing at Talkeetna Airport typically remain to the west of the runway to avoid traffic on Christiansen Lake although they are not required to do so. The TVA does not have an FAA-approved VFR traffic pattern; however, Exhibit 7 shows the approximate location of the nonapproved traffic pattern for the TVA. VFR traffic patterns for Talkeetna Airport, Christiansen Lake, and the TVA overlap. For safety reasons, the FAA recommends that the VFR traffic patterns established for nearby airports do not intersect or overlap, but they are allowed to have patterns that touch.

As detailed in the *Phase One Report*, the FAA agreed to conduct an airspace study to analyze a proposal to change the traffic pattern for Runway 18 to right-hand traffic (Appendix A).

Air traffic conflicts between Talkeetna Airport and the TVA were analyzed in this study. The FAA has issued a conditional determination of no aeronautical objection to the proposal, providing that several provisions be met. These provisions include changing the traffic patterns at both Talkeetna Airport and the TVA.

The traffic pattern at Talkeetna Airport would be changed from the standard left-hand pattern on both Runway 18 and Runway 36 to right-hand traffic on Runway 18 and left-hand traffic on Runway 36. The traffic pattern for Talkeetna Airport will be 1,000 ft AGL. Aircraft departing on Runway 18 should climb straight ahead to at least 1,000 ft AGL before turning westbound to avoid TVA traffic. Aircraft arriving on Runway 36 should maintain at least 1,000 ft AGL before turning final to avoid TVA traffic operating at 500 ft AGL or less.

TVA traffic would remain to the west of the airstrip over the Susitna River. Aircraft arriving and departing would remain at or below 500 ft AGL when east of the west bank of the Susitna River. Aircraft would remain well clear of the approach/departure course for Talkeetna Airport Runway 18/36. The TVA would also be added to the Alaska Supplement.

2.6.6 Navigational Aids

NAVAIDs are installed near Talkeetna to assist both local and en route aircraft. The Talkeetna Very High Frequency Omnidirectional Radio Range/Distance Measuring Equipment (VOR/DME) is located 1.6 mi south of the airport. The Peters Creek Nondirectional Beacon is located 0.6 mi northwest of the airport.

2.6.7 Airspace/Air Traffic Control

Anchorage Air Route Traffic Control Center (ARTCC) controls aircraft flying under instrument flight rules (IFR) within controlled airspace and participating aircraft operating under VFR across Alaska. Using radar and nonradar procedures, en route air traffic services are provided to aircraft at Talkeetna Airport by the Anchorage ARTCC.

The FAA also provides flight advisory services through the Talkeetna FSS, which operates Monday through Thursday, inclusive, from 0800 to 1600 hours local time, and Friday through Sunday, inclusive, from 0600 to 2130 hours local time. Pilots use frequency 123.6 megahertz (MHz) to contact the Talkeetna FSS. At other times, pilots must contact the

automated FSS located in Kenai for information concerning Talkeetna Airport. Local weather information can be obtained from the Talkeetna FSS, or by listening to the Talkeetna Transcribed Weather Broadcast on frequency 116.2 MHz.

There are several nonprecision instrument approaches to Talkeetna Airport published in the U.S. Government Flight Information Publication *U.S. Terminal Procedures, Alaska* (DOT, 2000b). These procedures use the local NAVAIDs as well as Global Positioning System. The procedures for aircraft approach categories A and B, along with the appropriate minimum descent altitude (MDA) and visibility minimum, are summarized in Table 2. All of the missed approach procedures for Runway 36 are flown to the west side of Runway 18/36. There are no published instrument procedures for the TVA, Christiansen Lake, or Fish Lake airports.

TABLE 2
Talkeetna Airport Instrument Approaches

	Minimum Descent Altitude (feet)		Visibility (miles)	
Aircraft Approach Category	**A**	**B**	**A**	**B**
Very High Frequency Omnidirectional Radio Range/ Distance Measuring Equipment Runway 36				
S-36	1,000	1,000	1.0	1.0
Circling	1,060	1,060	1.0	1.0
Very High Frequency Omnidirectional Radio Range-A				
Circling	1,060	1,060	1.0	1.0
Nondirectional Beacon Runway 36				
S-36	1,100	1,100	1.0	1.25
Circling	1,100	1,100	1.0	1.25
Global Positioning System Runway 36				
S-36	1,000	1,000	1.0	1.25
Circling	1,000	1,000	1.0	1.25

The Anchorage Sectional Aeronautical Chart indicates that Talkeetna Airport is located within Class E airspace, extending from the surface to 18,000 mean sea level (MSL). Class E airspace is used by aircraft transiting to and from the terminal or to and from the en route environment normally beginning at 14,500 to 18,000 ft MSL. Class E airspace ensures IFR aircraft remain in controlled airspace when approaching airports without Class D airspace

or when flying on Victor Airways. The Class E airspace at Talkeetna Airport separates VFR pilots from IFR pilots making instrument approaches at Talkeetna.

The Alaska Supplement recommends that helicopters using the fuel or maintenance facilities at Talkeetna Airport remain south of the FSS and fly direct from the rotating beacon to avoid damage to parked aircraft. Field observations of Talkeetna helicopter operations indicate that the majority of helicopter traffic flies straight-in approaches and departures to and from the west as well as straight-in approaches and departures to the northeast of the runway. The remaining helicopter traffic departs to the east, flying over Runway 18/36 and proceeding to the north.

SECTION 3

Heliport Activity Forecasts

Forecasts of aviation activity form the foundation upon which all the facilities requirements and improvements are based. The historical data and aviation forecasts presented in the *Phase One Report* (ADOT&PF, 1997) were duplicated and utilized in this study. These data were supplemented with a limited amount of additional data and original analysis to better define helicopter activity at Talkeetna. This information is critical to guide the development of the heliport to meet demands throughout the planning horizon. This section is divided into four parts:

- Background
- Heliport Air Service Area
- Historical Helicopter Activity
- Forecasted Helicopter Activity

3.1 Background

The *Phase One Report* contains forecasts of aviation demand for Talkeetna Airport through 2015. These forecasts, for both fixed-wing aircraft and helicopters, were developed from a survey of the commercial and military operators at the airport, as well as anecdotal information provided by FSS personnel. According to the draft EA (ADOT&PF, 2000), nearly 80 percent of the air traffic activity at Talkeetna occurs during the period April to September.

The traffic forecasts developed in the *Phase One Repor*t and used in this study are unconstrained traffic forecasts, which depend on a number of implicit and explicit assumptions. The most important assumptions directly impacting the forecasts are listed below:

- The Alaska economy and tourist industry will continue to grow at their current rates.
- Tourism growth at Talkeetna is expected to exceed the Alaska state average, especially with the completion of the Talkeetna Alaskan Lodge.

- The population of Talkeetna will continue to grow at the current rate.
- The seasonality of the air traffic at Talkeetna Airport will remain unchanged over the forecast period.
- ADOT&PF will continue to provide aviation facilities at Talkeetna Airport to accommodate future demands.

3.2 Heliport Air Service Area

The Talkeetna heliport has different service areas for the winter and summer seasons, and different service areas for civilian and military/government helicopter operations. Almost all of the helicopter operations at Talkeetna are either air taxi operations or military/government operations. Helicopters are based at Talkeetna only during the summer months.

Helicopter activity at Talkeetna includes charter flightseeing operations conducted by air taxi operators, mountain rescue operations conducted by the USA and the NPS, and a limited number of operations related to maintaining remote telecommunications facilities in the area. In the summer months, helicopter operations serve flightseeing activities. These helicopter passengers are drawn from all parts of the world by DNPP and the surrounding Alaska Range mountains. Helicopters are prohibited from landing inside DNPP, but are permitted to fly within the park boundary. However, flightseeing helicopters are permitted to, and commonly do, land in other areas near Talkeetna.

Talkeetna Heliport serves the military in three important ways: as a refueling and transit stop for flights between USA bases located near Fairbanks and Anchorage, as a stop or destination for training flights, and as a base for search and rescue operations in support of the NPS.

The joint NPS/USA search and rescue role is an important human life and safety mission. The summit of Denali is 20,320 ft, well above the service ceiling of most helicopters. The NPS/USA search and rescue role is critical because the helicopters they use are the only helicopters in Alaska capable of flying to these high elevations.

3.3 Historical Helicopter Activity

This section summarizes historical helicopter activity, including a discussion of the helicopter fleet mix and the number of based helicopters at Talkeetna Airport. The information herein provides the basis for helicopter activity forecasts presented in Section 3.4.

3.3.1 Historical Operations

The *Phase One Report* contains FAA-approved estimates of historical traffic volumes for the period 1980 to 1995. Table 3 summarizes the historic volumes for helicopter traffic at Talkeetna Airport.

TABLE 3
Historic Helicopter Operations

	Estimated Annual Operations					
Type of Operation	**1980**	**1985**	**1990**	**1992**	**1994**	**1995**
Nonmilitary	N/A	N/A	N/A	N/A	N/A	900
Military	500	500	500	500	500	500
Total Helicopter Operations	500+	500+	500+	500+	500+	1,400

Source: *Talkeetna Airport Phase One Report*
N/A = data not available

Included in the data are joint NPS/USA high-altitude search and rescue missions–typically 10 to 20 per year, according to NPS. The most rescues completed in one year was 29 in 1992. After being picked up by either NPS or USA, the patient is flown to the Talkeetna heliport for transfer to either a medevac flight or an ambulance. Critical patients are typically flown to Anchorage hospitals. Historically, having the heliport located adjacent to the runway for patient transfers has been very important.

3.3.2 Historical Fleet Mix

Using the available fleet mix information in the *Phase One Report* and other information received from the military, CH2M HILL developed the helicopter fleet mix shown in Table 4.

TABLE 4
Estimated 1995 Helicopter Fleet Mix

Helicopter Type	Number of 1995 Operations	% of Total
Bell 206B Jet Ranger	462	33
Eurocopter 315 Lama	392	28
CH-47 Chinook	500	36
Other	46	3
Total	1,400	100

About one-third of all the helicopter operations during 1995 were generated by civilian use of the Bell 206 Jet Ranger. These are the primary flightseeing aircraft carrying commercial passenger traffic. NPS flights of the Eurocopter 315 Lama helicopter accounted for about 28 percent of all helicopter operations in 1995. Military helicopter operations accounted for 36 percent of all the rotary-wing aircraft operations in 1995. "Other" is a catch-all category for civilian and military helicopters passing through the area that stop at Talkeetna's heliport. This category represents about 3 percent of the helicopter operations at the Talkeetna heliport.

3.3.3 Based, Seasonally Based, and Transient Helicopters

There are no reliable historical data for based aircraft at the Talkeetna Airport over the past 30 years. The *Phase One Report* (ADOT&PF, 1997) estimates the number of based aircraft at the Talkeetna Airport but does not identify the type of aircraft or differentiate between fixed-wing craft and helicopters. According to FAA Form 5010 (Appendix A), Talkeetna Airport has three based helicopters. Anecdotal information gathered from ADOT&PF staff indicates that relatively few helicopters have been based at Talkeetna Airport, and those were present on a seasonal basis. The NPS Eurocopter 315 Lama is regularly based at Talkeetna during the spring climbing season. Civilian helicopters have also been based at Talkeetna on a seasonal basis. In recent years, ADOT&PF has offered two seasonal leases to helicopter operators. These leases have been held by the NPS and one air taxi operator.

The USA temporarily bases three CH-47 Chinooks in Talkeetna for periods in excess of one week during the climbing season to conduct search and rescue and high-altitude training missions. Table 5 shows the historical number of helicopters based at Talkeetna Airport.

TABLE 5
Estimated Historical Based Helicopters, Talkeetna Airport

Helicopter Type	Number	Note
General aviation	1	Varies irregularly
Eurocopter 315 Lama	1	Seasonal, National Park Service rescue
CH-47 Chinook	3	Seasonal, rescue and training
Total	5	

3.4 Forecasted Helicopter Activity

3.4.1 Forecasted Helicopter Operations

3.4.1.1 *Phase One Report* Forecasted Helicopter Operations

Helicopter activity forecasts from the *Phase One Report* are reproduced in Table 6. Overall, helicopter operations were forecasted to grow from an estimated 1,450 annual operations in 2000 to 1,600 annual operations by 2015. Helicopter operations (including NPS and air taxi/flightseeing operations) were forecasted to grow at 1.0 percent per annum. Military operations were forecasted to remain flat for the planning period. This number includes both helicopters and fixed-wing aircraft. However, very few fixed-wing military aircraft operate at Talkeetna Airport, allowing all of these operations to be counted as helicopter operations. The historical seasonal traffic peaking of helicopter operations was forecasted to continue. Based on past experience, 80 percent of all the helicopter operations were forecasted to occur during the 6-month period between April and September.

The Talkeetna Airport serves other nonscheduled helicopter operations (primarily for flightseeing) throughout the year, with the biggest concentration of operations during the summer months. Fixed-wing tourism-related flightseeing and search and rescue flights out of Talkeetna Airport will continue to grow as predicted in the *Phase One Report*. Information provided by air taxi operators supports this information.

TABLE 6
Estimated Helicopter Operations Forecast, Talkeetna Heliport–Phase One Report

Activity	2000	2005	2010	2015
Air taxi/flightseeing	490	510	540	560
National Park Service rescue/training	410	440	450	480
Military	500	500	500	500
Other	50	50	60	60
Total	1,450	1,500	1,550	1,600

The NPS operates a Eurocopter 315 Lama helicopter from Talkeetna Airport during the spring and summer months, when mountain climbing activities peak in DNPP. Talkeetna Airport is an important transfer point between the fixed- and rotary-wing aircraft, especially when handling medical emergencies. Information from the NPS did not indicate any significant change in operations trends expected in the foreseeable future. The necessity of transferring medical patients from high-altitude helicopters to either an ambulance or a medevac aircraft, coupled with continued mountaineering in DNPP, will continue to drive this type of helicopter operations at Talkeetna.

The USA will likely continue to operate CH-47 Chinook helicopters from Talkeetna. Mountaineering in DNPP has steadily increased since the early 1920s, resulting in continued demand for high-altitude search and rescue operations that can only be performed by this aircraft (Appendix A). The USA will also likely continue to operate at Talkeetna for training exercise refueling on flights between Fairbanks and Anchorage.

3.4.1.2 Revisions to Forecasted Helicopter Operations

Since the original helicopter operations forecasts were prepared, several tourism-related projects have come to pass in Talkeetna. Completion of the Talkeetna Alaskan Lodge, a new ARRC train depot, and several other tourism-based businesses has occurred in concert with a significant increase in tourism at Talkeetna. Along with this growth has been greater-than-expected growth in helicopter air taxi activity, which has resulted in reports that the air taxi/flightseeing helicopter forecasts have underestimated actual demand.

Since the *Phase One Report* forecasts may have underestimated helicopter flightseeing operations at Talkeetna, it is necessary to reassess the number of air taxi/flightseeing helicopter operations presently occurring at Talkeetna.

The number of air taxi/flightseeing helicopters at Talkeetna has increased in recent years. There have recently been two air taxi/flightseeing helicopters based at Talkeetna during the summer season. These trips are frequently destined for either DNPP or the Talkeetna Mountains. The numbers of helicopter operations that are presently occurring at Talkeetna Airport can be roughly estimated by making reasonable assumptions of trip durations to these destinations, a minimum level of activity necessary to make the operation financially feasible, and a 90-day season during which the operations occur. This information, as well as anecdotal information provided by commercial helicopter operators, FSS personnel, and ADOT&PF staff, indicates that an estimated 2,160 operations during 2000 is reasonable.

The *Phase One Report* forecasts predict a 1 percent per annum growth in civil helicopter operations. Fixed-wing air taxi/air carrier operations were forecast to grow at 5 percent per annum, and fixed-wing general aviation operations were forecast to grow at 2 percent per annum. While detailed numerical data related to helicopter operations at Talkeetna Airport are not available, anecdotal information indicates that helicopter operations have grown at a rate greater than 1 percent annually. The fixed-wing growth rates outlined in the *Phase One Report* appear to be reasonable so far.

While helicopter flightseeing activity at Talkeetna is expected to increase, this growth will be affected by the higher cost of helicopter flightseeing trips relative to fixed-wing flightseeing trips and the NPS prohibition of helicopter landings in DNPP. These two factors will likely result in the growth rate of helicopter flightseeing operations being less than the growth rate for fixed-wing air taxi/air carrier activity. Additionally, since helicopter flightseeing is commercial activity, flightseeing helicopter operations will likely grow at a rate greater than fixed-wing GA operations. Based on these factors, 3 percent annual growth appears to be a reasonable estimate for flightseeing operations at Talkeetna Airport. This results in forecasts of 2,628 operations in 2005, 3,197 operations in 2010, and 3,890 operations in 2015.

In summary, the helicopter operations forecasts outlined in the *Phase One Report* appear to be reasonable, with the exception of those for the air taxi/flightseeing operations. The annual growth rate for air taxi/flightseeing operations has been adjusted from 1 to 3 percent to better reflect estimated growth rates, and the number of air taxi/flightseeing helicopter operations that occurred during 2000 has been adjusted from 490 to 2,160. These revised helicopter operations forecast are summarized in Table 7.

TABLE 7
Revised Estimated Helicopter Operations Forecast, Talkeetna Heliport

Activity	2000	2005	2010	2015
Air taxi/flightseeing	2,160	2,628	3,197	3,890
National Park Service rescue/training	410	440	450	480
Military	500	500	500	500
Other	50	50	60	60
Total	3,120	3,618	4,207	4,930

3.4.2 Forecasted Helicopter Fleet Mix

Existing helicopter fleet mix information contained in the *Phase One Report* and other information received from the military and air taxi/flightseeing operators were used to develop the helicopter fleet mix forecasts shown in Table 8. Both the total number of annual operations by each model helicopter are shown, as well as the percentage of total operations for each model.

TABLE 8
Estimated Helicopter Fleet Mix Forecast, Talkeetna Heliport

	Total Helicopter Fleet			
Aircraft	2000 (total/%)	2005 (total/%)	2010 (total/%)	2015 (total/%)
Bell 206 Jet Ranger Eurocopter 350 A Star	2160/69	2628/73	3197/76	3890/79
Eurocopter 315 Lama	410/13	440/12	450/11	480/10
CH-47 Chinook Sikorsky UH-60 Blackhawk	500/16	500/14	500/12	500/10
Other	50/2	50/1	60/1	60/1

In 2000 about 69 percent of all the helicopter operations were generated by civilian use of the Bell 206 Jet Ranger and the A Star 350. Operations of these helicopters are forecasted to gradually increase from 69 percent of the total helicopter operations at Talkeetna in 2000 to 79 percent in 2015. These are the primary flightseeing aircraft carrying commercial passenger traffic. They are well suited to that role and likely to remain the principal models used by air taxi and flightseeing operators.

The NPS's Eurocopter 315 Lama helicopters accounted for 13 percent of all helicopter operations in 2000. This proportion is estimated to decrease to 10 percent by 2015, even though the total number of operations will increase by 2015. The Eurocopter 315 Lama fulfills a specific high-altitude search and rescue mission that few civilian helicopters will be able to complete over the planning period.

Military helicopter operations accounted for 16 percent of all the helicopter operations in 2000. While the absolute number of military helicopter operations is expected to remain constant at 500 per year, the percentage of total will gradually decrease from 16 percent in 2000 to 10 percent in 2015. These operations include both the CH-47 Chinook and the Sikorsky UH-60 Blackhawk. Both helicopters are capable of high-altitude, heavy-lift mountaineering rescues, and are forecasted to continue serving this role. The USA's continued use of Talkeetna as a refueling stop and base for high-altitude training is also forecasted to continue.

The remaining operations fall under the "other" category, which captures itinerant helicopters passing through the area and stopping at Talkeetna Heliport. This category includes both civilian and military helicopters of varying equipment types and represented 2 percent of the helicopter operations at Talkeetna Airport during 2000. The total number of operations by "other" helicopters is expected to increase by 2015, but the proportion will drop to 1 percent of the total helicopter operations

3.4.3 Forecasted Based, Seasonally Based, and Transient Helicopters

The *Phase One Report* did not forecast the number of based and transient helicopters at Talkeetna Airport. As part of this study, the number of based helicopters at Talkeetna was loosely forecasted based on existing information and forecasts as well as anecdotal

information gathered from discussions with ADOT&PF staff and air taxi operators. Forecasts for based, seasonally based, and transient helicopters are summarized in Table 9.

TABLE 9
Based, Seasonally Based, and Transient Helicopter Forecast, Talkeetna Airport

	Year			
Aircraft	**2000**	**2005**	**2010**	**2015**
Bell 206 Jet Ranger Eurocopter 350 A Star	1[a]	4[a]	4[a]	4[a]
Eurocopter 315 Lama	1[a]	1[a]	1[a]	1[a]
CH-47 Chinook/ Sikorsky UH-60 Blackhawk	3[b]	3[b]	3[b]	3[b]
Total	5	8	8	8

[a] Seasonally based, summer
[b] Long-term transient

No permanently based helicopters are forecasted at Talkeetna Airport; however, several seasonally based and long-term transient helicopters are forecasted. However, the seasonally based operators have operational requirements that are identical to based aircraft and are therefore considered as such.

SECTION 4

Facility Requirements

This section presents the facilities required to support the forecasted helicopter activity at Talkeetna heliport throughout the planning horizon. Following the identification of the design helicopter (Section 4.1), subsequent subsections describe the appropriate facility requirements for the heliport's airside and landside components in accordance with FAA Advisory Circular (AC) 150/5390-2A, *Heliport Design* (DOT, 1994), and AC 150/5300-13, *Airport Design* (DOT, 2000c).

4.1 Design Helicopter

Helicopter facilities are designed based on the requirements of specific helicopter models forecasted to utilize the heliport. *Heliport Design* contains helicopter data relevant to the design of heliports. Helicopters over 12,000 pounds (lbs) are classified as heavy helicopters. Table 10 summarizes the relevant dimensions of the forecasted helicopter fleet mix at the Talkeetna heliport.

TABLE 10
Helicopter Characteristics, Talkeetna Airport

Model	Main Rotor Diameter (feet)	Overall Length (feet)	Undercarriage		Maximum Takeoff Weight (pounds)
			Length (feet)	Width (feet)	
Eurocopter 315 Lama	37.0	43.0	5.3[a]	7.8[a]	4,300
Eurocopter 350 A Star	36.0	43.0	4.7[a]	7.1	4,960
Bell 206Jet Ranger	37.0	43.0	9.9[a]	7.2[a]	4,450
Sikorsky UH-60 Blackhawk	54.0	65.0	29.0	8.9	22,000
CH-47 Chinook	60.0[b]	99.0	25.8	10.5	48,500

[a] Skid equipped.
[b] The CH-47 Chinook has two rotors, each 60 feet in diameter.

The CH-47 Chinook is the most demanding helicopter forecasted for Talkeetna Airport and is therefore identified as the design helicopter for Talkeetna Airport. Individual parking spaces for less demanding helicopters can be designed for each specific helicopter.

4.2 Airside Facility Requirements

In addition to design helicopter characteristics, the FAA's heliport design standards rely on designated or planned visibility minimums for nonprecision and precision instrument approaches as well as the heliport classification. *Heliport Design* classifies heliports into four categories: private-use heliports, public-use GA heliports, transport heliports, and hospital heliports. Talkeetna heliport meets the criteria for a public-use GA heliport, which can be used by the general public without a requirement for prior approval of the owner or operator. This type of heliport accommodates helicopters used by individuals, corporations, military and government, and helicopter air taxi services. Scheduled passenger services may be available if sufficient demand exists.

4.2.1 Touchdown and Liftoff Area

The Touchdown and Liftoff Area (TLOF) is a load bearing, generally paved area, normally centered in the Final Approach and Takeoff Area (FATO), on which the helicopter lands or takes off. The TLOF is frequently called a heliport or helideck. The minimum dimension for the TLOF is not less than one rotor diameter of the design helicopter.

Based on the diameter and placement of the two rotors for the CH-47 Chinook, the appropriate TLOF dimensions are 99 ft by 99 ft. The TLOF should be paved with portland cement concrete to support the maximum takeoff weight of the design helicopter and to mitigate flying dust and gravel.

4.2.2 Final Approach and Takeoff Area

The FATO is a defined area over which the final phase of the approach to a hover, or a landing, is completed and from which the takeoff is initiated. *Heliport Design* requires that the least dimension of the FATO shall be not less than 1.5 times the overall length of the design helicopter for heliports at elevations less than 1,000 ft. Based on the overall length of the design helicopter, the FATO should be 148.5 ft by 148.5 ft.

According to *Heliport Design*, the recommended distance between the centerline of an approach to a runway and the centerline of an approach to a FATO for simultaneous same-direction operations under VFR conditions for small airplanes (under 12,500 lbs) and heavy helicopters (over 12,000 lbs) is 700 ft.

Increasing this distance to the extent possible is desirable, allowing the future development of instrument approach procedures with lower visibility minimums into either the runway or the heliport.

4.2.3 Heliport Safety Area

The Heliport Safety Area (HSA) is a defined area surrounding the FATO that is free of objects, other than those required for air navigation purposes. It is intended to reduce the risk of damage to helicopters accidentally diverging from the FATO. The width of the HSA shall be equal to one-third the rotor diameter of the design helicopter but not less than 20 ft.

Both rotors on the CH-47 Chinook have a diameter of 60 ft. Based on this criterion, the HSA should extend 20 ft beyond the FATO.

4.2.4 Heliport Protection Zone

The Heliport Protection Zone (HPZ) is an area off each end of the FATO used to enhance the protection of people and property on the ground. It is the area from the FATO to where heliport approach surface attains 35 ft above the heliport elevation. The length of the Talkeetna heliport HPZ is 280 ft. The inner width of the HPZ is 148.5 ft. The outer width of the HPZ is 173 ft.

4.2.5 Hazardous Wildlife Attractants

AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports* (DOT, 1997a), recommends a 10,000-ft separation between putrescible waste disposal facilities and an airport's aircraft movement area that serves turbine-powered aircraft. The existing sewage lagoon is considered a putrescible waste disposal facility by the FAA.

4.2.6 Taxiway and Taxiroute

A taxiroute is both an object-free right-of-way connecting the FATO to a parking area/apron and a maneuvering aisle on the parking area/apron. Taxiways are paved surfaces, normally centered on a taxiroute, used by wheel-equipped helicopters for ground maneuvering.

Heliport Design requires that taxiroutes and taxiways be designed to provide 20 ft of rotor tip clearance to objects and parked helicopters for hover taxiing and 10 ft of clearance for ground taxiing. The width of the paved taxiway should be designed to provide at least twice the undercarriage width of the design helicopter. The surface of taxiways should be paved and designed to withstand the maximum gross weight of the design helicopter under all weather conditions.

Based on the design helicopter, the taxiroute should be 100 ft wide to accommodate hover taxiing. It is recommended that the taxiway be 21 ft wide and paved with portland cement concrete to withstand the wheel loads of the design aircraft.

4.2.7 Heliport Lighting

For night operations, the FATO or TLOF, but not both, and taxiways or taxiroutes should to be lighted. Yellow lights define the limits of the FATO or TLOF. Flush green lights define taxiway centerlines. Blue omnidirectional lights or reflectors define taxiroute edges. A heliport identification beacon is recommended to aid pilots in locating the heliport when its location cannot be readily identified by a prominent lighted landmark.

Lighting will be incorporated into the design of the proposed heliport to improve night and poor-weather operations. Talkeetna Airport has an existing airport rotating beacon; therefore, a new heliport identification beacon is not required if the heliport is located at Talkeetna Airport.

4.2.8 Wind Direction Indicator

A wind cone is recommended to show the direction and magnitude of the wind. Wind cones must be lighted for night operations. The wind cone should be placed where it

provides a true indication of surface wind and is clear of the HSA, the approach/takeoff surfaces, and the heliport transitional surfaces.

Talkeetna Airport has an existing lighted wind cone and segmented circle. A new wind cone will not be necessary at the proposed heliport if the existing wind cone will adequately indicate wind conditions at this new site. If necessary, an new lighted wind cone and segmented circle will be constructed at the proposed heliport.

4.2.9 Helicopter Parking

A public-use GA heliport, unless designed as a helistop, should have an area designated for helicopter parking. The size of the parking apron depends upon the number of helicopters to be accommodated. Parking positions should be designed to accommodate the range of helicopter sizes expected at the facility.

Parking position size is dependent upon helicopter size and the taxiroute locations. There should be at least one-third rotor diameter, but not less than 10 ft, of clearance between skid-equipped helicopters and at least 10 ft for wheel-equipped helicopters to another helicopter or object. Clearances are measured from any part of a helicopter with the helicopter on any intended path.

Per the heliport forecasts presented in Section 3.4.3, the Talkeetna heliport should accommodate eight parking positions by the close of the planning period. Three positions should be sized for a CH-47 Chinook and the remaining five positions sized for either a Bell 206 Jet Ranger or Eurocopter 315 Lama. Table 11 details this information.

TABLE 11
Helicopter Parking Requirements, Talkeetna Airport

Aircraft	2000	2005	2010	2015
Bell 206 Jet Ranger Eurocopter 350 A Star	1[a]	4[a]	4[a]	4[a]
Eurocopter 315 Lama	1[a]	1[a]	1[a]	1[a]
CH-47 Chinook Sikorsky UH-60 Blackhawk	3[b]	3[b]	3[b]	3[b]
Total	5	8	8	8

[a] seasonally based, summer
[b] long-term transient

4.3 Airspace

FAA design criteria that relate to heliport airspace are contained in *Heliport Design* and Federal Aviation Regulation (FAR) Part 77. Operationally, FAR Part 91, *General Operating and Flight Rules* (Title 14, Chapter 1.91, of the *Code of Federal Regulations*), requires that helicopters avoid the flow of fixed-wing aircraft when approaching an airport to land.

4.3.1 Approach/Takeoff Path

A public-use GA heliport should have more than one approach/takeoff path. At least one path should be oriented to the direction of the predominant wind. If necessary, approach/takeoff paths may curve to avoid objects and/or noise sensitive areas and utilize the airspace above public lands. To the extent practical, helicopter approach/takeoff paths should be independent of approaches to active runways. The Talkeetna Airport windrose indicates that the predominant winds are from the south and the north, dictating that approach/takeoff paths be aligned north and south, parallel to Runway 18/36. Additionally, this alignment will reduce the likelihood of air traffic conflicts between helicopters and fixed-wing aircraft.

4.3.2 Objects Affecting Navigable Airspace

FAR Part 77 establishes standards for identifying obstructions (manmade, natural terrain, or vegetation) to the safe and efficient use of airspace surrounding heliports that support only visual operations. Three heliport imaginary surfaces are defined in Part 77: the primary surface, the approach surface, and the transitional surface.

The primary surface coincides with the designated takeoff and landing area (now known as the FATO) of the heliport. The approach surface begins at the primary surface and extends outward and upward for a horizontal distance of 4,000 ft, where its width is 500 ft. The slope of the approach surface is 8 ft horizontal for 1 ft vertical. The transitional surfaces extend outward and upward from the lateral boundaries of the primary surface and from the approach surface at a slope of 2 ft horizontal to 1 ft vertical for a distance of 250 ft from the centerline of the primary and approach surfaces. Appendix D summarizes the applicable minimum Part 77 standards.

4.4 Landside Facility Requirements

4.4.1 Heliport Lease Lot Development

The FAA requires that airport sponsors make the facility as economically self-sustaining as possible. ADOT&PF policy concurs and recommends lease lot development to generate revenue. Therefore, developing these lots at the time of heliport construction is prudent since lease lot development is likely to become cost prohibitive if it occurs after heliport construction. Lease lot development consists only of pad construction; any further development would be the responsibility of the lessee.

Lease lot requirements at Talkeetna Heliport are two 150-ft by 150-ft lease lots.

4.4.2 Maintenance and Operations

The existing Talkeetna Airport M&O facilities and maintenance equipment are adequate to maintain the proposed heliport. Snow storage should be provided adjacent to the heliport and helicopter parking positions.

4.4.3 Ground Access

Construction of a two-lane access roadway from the nearest existing public road to the heliport and the commercial lease lot is recommended. The roadway should be paved and designed to accommodate the weight of fuel trucks.

4.5 Facility Requirements Summary

Table 12 summarizes design requirements for the Talkeetna heliport.

TABLE 12
Heliport Design Summary

Design Element	Requirement
TLOF length	99 ft
TLOF width	99 ft
FATO length	148.5 ft
FATO width	148.5 ft
FATO/runway separation	700 ft
Heliport Safety Area length (beyond FATO edge)	20 ft
Heliport Protection Zone	Inner Width: 148.5 ft Outer Width: 173 ft Length: 280 ft
Separation from putrescible waste disposal facilities	10,000 ft from aircraft movement areas
Taxiway width	21 ft
Taxiroute width	100 ft
Heliport lighting	TLOF or FATO edge lights
Wind direction indicator	Lighted wind cone
Helicopter parking pad length (Jet Ranger/A Star)	38.7 ft
Helicopter parking pad width (Jet Ranger/A Star)	15.75 ft
Helicopter parking pad length (CH-47 Chinook)	15.75 ft
Helicopter parking pad width (CH-47 Chinook)	148.5 ft

FATO = Final Approach and Takeoff Area
ft = feet
TLOF = Touchdown and Liftoff Area

SECTION 5

Alternatives and Initial Evaluation

The objective of this section is to identify site alternatives and to complete an initial evaluation. Alternatives that do not best meet the purpose and need for the project and are therefore not viable will be eliminated. The intent is to evaluate the alternatives identified in the AMP and suggested by residents and other stakeholders and to identify and evaluate new alternatives. The alternatives that best fulfill the purpose and need will then undergo a more detailed analysis and will be evaluated in the EA.

To meet the purpose and need, the proposed location must meet the following criteria:

- Redirect helicopter traffic away from parked and taxiing fixed-wing aircraft.
- Provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015.
- Redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA.
- Relocate helicopter operations away from residential areas to reduce noise impacts.
- Be compatible with proposed and future development shown on the draft ALP.
- Comply with FAA design standards to the extent possible.

5.1 Heliport Site Alternatives

Eight heliport alternatives have been identified, including a No-Action Alternative (Exhibits 8 and 9). Five alternatives are located at Talkeetna Airport. The remaining two sites are located off airport property. The first of the two off-airport sites is located on FAA property near the Talkeetna VOR/DME. No exact site was identified for the second off-airport alternative.

All of the alternatives, except the No-Action Alternative, incorporate the facility requirements identified in Chapter 4. All of the alternatives maximize wind coverage and

reduce air traffic conflicts by establishing approach/takeoff paths that are parallel to the existing runway.

5.1.1 No-Action Alternative

Considering a No-Action Alternative provides a baseline for measuring the improvements of future build alternatives and is required by NEPA. Under this alternative, no improvements will be made to the existing Talkeetna Heliport, thereby ignoring the safety, capacity, and facility deficiencies of the existing heliport. In addition, the development plan outlined on the draft ALP shows that the existing heliport will be redeveloped into a commercial apron and lease lots. Development of the proposed commercial apron is scheduled for the short-term horizon (2000 to 2005). This implies that the existing heliport will be abandoned without plans to accommodate the displaced operations.

This alternative:

- Does not redirect helicopter traffic away from parked and taxiing fixed-wing aircraft
- Does not provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015
- Does not redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA
- Is not compatible with proposed and future development shown on the draft ALP
- Does not comply with FAA design standards to the extent possible

Even though the No-Action Alternative does not satisfy the project purpose and need, it is included in the EA for comparative purposes in accordance with NEPA.

5.1.2 Alternative A–West of 18 Threshold

Alternative A would involve constructing a new heliport 700 ft west of the existing Talkeetna Airport runway and 800 ft north of the existing M&O facility, adjacent to Beaver Street and the future government lease reserve and ski plane parking shown on the draft ALP. An access road would be constructed from the proposed M&O access road shown on the draft ALP to the proposed lease lot. This alternative would incorporate all of the facility

requirements outlined in Chapter 4 and would be in compliance with FAA design standards, except for the separation from wildlife attractants. This alternative does not impact wetlands.

This alternative is located within 300 ft of residential housing in the Denali Subdivision. It is also located 2,100 ft from the existing sewage lagoon. The existing M&O facility would partially obstruct the line of sight between the TLOF and Runway 18/36. This alternative separates helicopter parking from fixed-wing aircraft but does not resolve all of the operational concerns. Helicopter traffic may conflict with fixed-wing aircraft arriving on Runway 18 or departing on Runway 36.

This alternative:

- Does not redirect helicopter traffic away from parked and taxiing fixed-wing aircraft
- Does provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015
- Does not redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA
- Is compatible with proposed and future development shown on the draft ALP
- Does comply with FAA design standards to the extent possible

For these reasons, this alternative does not fulfill the purpose and need and is not carried forward.

5.1.3 Alternative B–Improve Existing Talkeetna Heliport

Alternative B involves upgrading the existing heliport to meet FAA design standards. The existing heliport is located immediately south of the existing commercial apron, adjacent to an abandoned landfill. This is the location of the proposed commercial apron shown on the draft ALP. Development of the proposed commercial apron is scheduled for the short-term horizon (2000 to 2005). This alternative would incorporate all of the facility requirements outlined in Chapter 4. An access road would be constructed from the existing commercial apron access road to the upgraded heliport. The existing commercial apron would partially

obstruct the line of sight between the TLOF and Runway 18/36. This alternative does not impact wetlands.

Since helicopters would be parked adjacent to the fixed-wing commercial apron, this site would not effectively separate fixed-wing aircraft and helicopters. It would also not resolve the existing air traffic conflicts between helicopters and fixed-wing aircraft using Runway 18/36. Like Alternative A, this site is located adjacent to the community, and the existing noise impacts would continue to occur.

This alternative:

- Does not redirect helicopter traffic away from parked and taxiing fixed-wing aircraft
- Does provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015
- Does not redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA
- Is not compatible with proposed and future development shown on the draft ALP
- Does comply with FAA design standards to the extent possible

For these reasons, this alternative does not fulfill the purpose and need and is not carried forward.

5.1.4 Alternative C–East of 36 Threshold

Alternative C is located 700 ft east of the Runway 36 threshold, along the edge of the Twister Creek wetland complex. A 3000-ft-long access road would be constructed south of the existing commercial apron access road, through the Runway 36 protection zone, and then north to the proposed Alternative C site. Relic permafrost has been encountered in this area. This alternative meets FAA design standards, with the exception of the separation from wildlife attractants, and mixes well with other airport operations and services. It also provides good site visibility for other aircraft approaching and departing Runway 18/36.

Since this alternative is located in a wetland, special features have been incorporated into the layout that would mitigate impacts. Impacts have been avoided by locating the

helicopter parking between the TLOF and Runway 18/36, in an upland area. Drainage culverts would be installed under the road to maintain recharge of the Twister Creek wetlands to the south, further minimizing wetlands impact. Utilities would be located in the access road.

This alternative is located relatively close to downtown Talkeetna, the existing ARRC train station, the Talkeetna Alaskan Lodge, and other services. Locating the heliport adjacent to these services is a benefit to the commercial operators, the military, and the NPS.

This alternative:

- Does redirect helicopter traffic away from parked and taxiing fixed-wing aircraft
- Does provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015
- Does redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA
- Is compatible with proposed and future development shown on the draft ALP
- Does comply with FAA design standards to the extent possible

This alternative fulfills the purpose and need and is carried forward.

5.1.5 Alternative D–Northwest of 18 Threshold

Alternative D is located in the northwest corner of the airport property, approximately 2,100 ft northwest of the Runway 18 threshold. A 620-ft-long access road would be constructed from Beaver Street to the proposed site. This alternative would incorporate all of the facility requirements outlined in Chapter 4 and would be in compliance with FAA design standards, except for the separation from wildlife attractants. This alternative does not impact wetlands, nor does it conflict with any proposed or future development shown on the draft ALP.

The forested area between the TLOF and Runway 18/36 would be cleared to eliminate this obstruction to the line of sight between the two. This alternative separates helicopter parking and operations from fixed-wing aircraft but does not resolve all of the operational

concerns. Helicopter traffic may conflict with fixed-wing aircraft arriving on Runway 18 or departing on Runway 36, and the site is located immediately adjacent to the Talkeetna River Subdivision, resulting in potential noise impacts to the community. This alternative is located away from the existing airport services. It is also located 1,000 ft from the sewage lagoon, in violation of FAA criteria cited in AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*. This criterion could be waived; however, a study conducted by the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, and Wildlife Services in April 1999 determined that a number of birds are present at the sewage lagoon. Wildlife Services concluded that the proposed heliport's close proximity to the sewage lagoon would likely necessitate the management of potentially hazardous wildlife species in that area (Appendix A). This alternative has no wetlands impacts.

This alternative:

- Does not redirect helicopter traffic away from parked and taxiing fixed-wing aircraft
- Does provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015
- Does not redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA
- Is compatible with proposed and future development shown on the draft ALP
- Does comply with FAA design standards to the extent possible

For these reasons, this alternative does not fulfill the purpose and need and is not carried forward.

5.1.6 Alternative E–Northeast of 18 Threshold

Alternative E is located in the northeast corner of the airport, approximately 2,500 ft northeast of the Runway 18 threshold. A 3,500-ft-long access road would be constructed from the existing M&O facility to the heliport. This alternative would incorporate all of the facility requirements outlined in Chapter 4 and would be in compliance with FAA design standards except for the separation from wildlife attractants. This alternative may impact

wetlands but does not conflict with any proposed or future development shown on the draft ALP.

The forested area between the TLOF and Runway 18/36 would be cleared to eliminate this obstruction to the line of sight between the two. This alternative separates helicopter parking and operations from fixed-wing aircraft, and effectively isolates helicopter operations from fixed-wing operations at Talkeetna Airport and the TVA. However, minor conflicts may occur with aircraft arriving at or departing from Christiansen Lake.

This alternative is located away from the existing commercial apron , services for transient pilots and aircraft, and emergency services.

This alternative:

- Does redirect helicopter traffic away from parked and taxiing fixed-wing aircraft
- Does provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015
- Does redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport and the TVA. However, minor conflicts may existing with aircraft traffic associated with Christensen Lake.
- Is compatible with proposed and future development shown on the draft ALP
- Does comply with FAA design standards to the extent possible

This alternative fulfills the purpose and need and is carried forward.

5.1.7 Alternative F–Talkeetna VOR/DME Location

Alternative F is located on FAA property at the Talkeetna VOR/DME site between the Talkeetna Spur Road and the Susitna River, approximately 1.6 mi south of Talkeetna Airport. The VOR/DME site consists of about 140 acres, with the VOR/DME antenna located on a hilltop in the western portion of the site. The remaining portion of property falls away to a ravine located adjacent to the Talkeetna Spur Road right-of-way. The proposed heliport would be located in the area of this ravine. A 500-ft access road would be constructed from the heliport to the Talkeetna Spur Road.

This alternative would incorporate all of the facility requirements outlined in Chapter 4 and would be in compliance with FAA design standards, except for conflicts with the Talkeetna VOR/DME. This alternative does not impact wetlands, nor does it conflict with any proposed or future development shown on the draft ALP.

FAA Order 6820.10, *VOR, VOR/DME, and VORTAC Siting Criteria* (DOT, 1986b), contains technical guidance for improving the performance of VOR, VOR/DME, and VORTAC installations where performance degradation can be attributed to site conditions. Several siting and design standards apply to VOR/DME facilities to minimize interference to the antenna. These standards are summarized in Table 13.

TABLE 13
VOR, VOR/DME, and VORTAC Siting Criteria

Site grading	The ground slope and ground smoothness are critical within the first 1,000 feet of the antenna location. The ground in the vicinity of the antenna must be level or fall away gently from the ground level at the base of the structure.
Chain-link fence	Prohibited within 500 feet of antenna.
Power and control lines	Must be underground within 600 feet of antenna.
Overhead conductors	Prohibited with 1,200 feet of the antenna, except those serving the site.
Structures	Prohibited with 1,000 feet of antenna.

The FAA has conducted a detailed review of this alternative. Several divisions of the FAA have objected to the construction of a heliport at this location (Appendix A). They have determined that this location may interfere will the operation of the Talkeetna VOR/DME and may also bring airborne helicopters very close to fixed-wing aircraft on approach to Runway 36.

Constructing this alternative would require extensive amounts of earthwork due to the uneven terrain at this location, resulting in high construction costs. Additionally, the rising topography adjacent to the location would constitute a hazard to air navigation, compromising aviation safety and security.

This alternative:

- Does not redirect helicopter traffic away from parked and taxiing fixed-wing aircraft

- Does provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015
- Does not redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA
- Is compatible with proposed and future development shown on the draft ALP
- Does not comply with FAA design standards to the extent possible

For these reasons, this alternative does not fulfill the purpose and need and is not carried forward.

5.1.8 Alternative G–Off-Airport Alternatives

Alternative G involves abandoning the existing heliport at Talkeetna and constructing a new heliport at a location away from Talkeetna. No heliport facilities will be constructed or maintained at Talkeetna Airport. This alternative was developed to represent the off-airport locations that may be found to accommodate a heliport.

The primary goals of relocating the Talkeetna heliport from the existing airport are to mitigate noise impacts to the surrounding community, reduce airspace conflicts, avoid wetland impacts, and ensure ample space for expanding the facility. However, off-airport alternatives present several financial, operational, and legal issues.

The only mechanism available to fund the construction of the heliport is an FAA grant. FAA Airport Improvement Program (AIP) funds can only be used if the heliport is included in the National Plan of Integrated Airport Systems (NPIAS). Like airports, heliports may be included in the NPIAS if they meet certain criteria outlined in FAA Order 5090.3C*, Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)* (DOT, 1997c). The heliport alone would not meet the criteria to be listed as a Commercial Service or GA airport. However, if the basic requirements are not met, a heliport can still be eligible for inclusion to the NPIAS if it "makes a significant contribution to public transportation." The heliport would have to have at least 4 based rotorcraft, 800 annual itinerant operations, and 400 annual operations by air taxi rotorcraft. Based on the forecasts of helicopter activity, Talkeetna heliport would meet this criterion.

If the new heliport is constructed with FAA funding, ADOT&PF is required to adhere to the requirements of FAA Order 5100.38A, *Airport Improvement Program (AIP) Handbook* (DOT, 1997d). Appendix 1 of this document requires, among other things, that that ADOT&PF provide year-round maintenance at the facility. This would involve considerable new M&O expenses for ADOT&PF, further stretching their already strained maintenance budget

Constructing a new heliport away from Talkeetna Airport may not fulfill the purpose and need for the project. Constructing a new heliport at a location other than Talkeetna Airport may not result in the operation's being relocated to that new location. The demand for air taxi and flightseeing services exists at Talkeetna Airport. The operators who are seeking to meet this demand may not choose to relocate to the new heliport since the demand is at Talkeetna. Likewise, the USA and the NPS both use Talkeetna Airport because of its proximity to community services such as fuel sales, aircraft repair and maintenance, lodging, and restaurants. The USA and NPS serve a critical life and safety function at the airport, and the ability to transfer critical patients from a helicopter to a fixed-wing medevac may also deter the USA and NPS from relocating their operations.

The only way to be certain that helicopter operators would relocate to the new heliport would be to close Talkeetna Airport to helicopter operations. However, Appendix 1 of the AIP Handbook requires that Talkeetna Airport be available for public use on fair and reasonable terms without unjust discrimination, to all types, kinds, and classes of aeronautical uses. Appendix 1 also requires that the airport be available for use by government aircraft. These rules may prevent ADOT&PF from closing Talkeetna Airport to the USA, the NPS, or any other operator of helicopters. Additionally, the FAA has sent ADOT&PF a letter indicating that Talkeetna Heliport may not be closed to helicopters.

Given that helicopter operators have little incentive to cease operations at Talkeetna Airport, and that ADOT&PF that cannot legally force them off Talkeetna Airport, constructing a new heliport away from Talkeetna Airport may not accommodate the existing and forecasted helicopter demand at Talkeetna. ADOT&PF may construct a new heliport at a location other than Talkeetna, but operators may choose to continue to operate at Talkeetna Airport.

This alternative:

- Does redirect helicopter traffic away from parked and taxiing fixed-wing aircraft
- Does not provide facilities to accommodate the existing and forecasted helicopter demand at Talkeetna through 2015
- May redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA
- Is compatible with proposed and future development shown on the draft ALP
- May comply with FAA design standards to the extent possible

For these reasons, this alternative does not fulfill the purpose and need and is not carried forward.

5.2 Initial Evaluation Summary

Several alternatives were eliminated in the initial evaluation because they do not fulfill the purpose and need of the project. Table 14 summarizes this information for each criterion in the purpose and need statement. If an alternative does not meet any criterion in the purpose and need statement, an "N" appears in the table. If the alternative does meet the criterion, a "Y" appears in the table. The alternatives that best meet the criteria in the purpose and need statement will be carried forward.

TABLE 14
Initial Evaluation Summary

	Alternative							
Purpose and Need Criteria	**No Action**	**A**	**B**	**C**	**D**	**E**	**F**	**G**
Redirect helicopter traffic away from parked and taxiing fixed-wing aircraft	N	N	N	Y	N	Y	N	Y
Provide facilities to accommodate existing and forecasted helicopter demand at Talkeetna Airport	N	Y	Y	Y	Y	Y	Y	N
Redirect approaching and departing helicopters away from fixed-wing aircraft approaching and departing Talkeetna Airport, Christiansen Lake, and the TVA	N	N	N	Y	N	Y	N	Y
Compatible with proposed and future development shown on the draft Airport Layout Plan	N	Y	N	Y	Y	Y	Y	Y
Comply with Federal Aviation Administration design standards to the extent possible	N	Y	Y	Y	Y	Y	N	Y

Alternatives C and E best meet the purpose and need for the project and are the only alternatives carried forward into the detailed evaluation.

SECTION 6

Preferred Site Alternative Selection Analysis

As determined by the initial screening summarized in Table 14, Alternatives C and E were selected as the best two alternatives for Talkeetna heliport. These alternatives are analyzed in further detail with respect to the following ten criteria:

- Noise compatibility
- Airspace compatibility
- Ground access
- Wetlands impacts
- Hydraulics and Hydrology
- Land-use impacts
- Construction costs
- M&O costs
- Site visibility
- Meeting FAA standards

6.1 Noise Compatibility

Alternatives C and E are similar in terms of noise impacts. (Appendix C). For both heliport alternatives, the Day-Night Noise Level (DNL) 65 contour is contained within airport property for the 2015 annual average day condition. Under the 2015 peak season average day condition, the DNL 65 contour would be exceeded at several of the adjacent lots in the Denali Subdivision. This condition is identical under both heliport alternatives. The noise analysis contained in Appendix C contains a full evaluation of aircraft noise impacts resulting from operations at Talkeetna Airport.

6.2 Airspace Compatibility

Both heliport alternatives are similar in terms of airspace compatibility between the proposed heliport and the traffic patterns and airspace for Talkeetna Airport Runway 18/36, Christiansen Lake, and the TVA. As outlined in Subsection 2.6.5 of this document, VFR air traffic at Talkeetna will be separated by elevation, with Talkeetna traffic remaining above 1,000 ft AGL and TVA traffic remaining below 500 ft AGL. Traffic at both Alternative C and Alternative E sites would be handled by keeping helicopters below 500 ft AGL until they are in the vicinity of Talkeetna Airport. Straight-in approach and departure tracks from the north and south would allow helicopters to avoid the flow of fixed-wing traffic (Exhibit 10).

6.3 Ground Access

Table 15 shows driving distances from the existing M&O facility to the locations of heliport Alternatives C and E. These distances are relevant to safety and operational factors favoring the consolidation of aviation facilities in a central location, as well as additional utility extensions.

TABLE 15
Driving Distance from Maintenance and Operations Facility

Alternative	Distance from Apron
Alternative C–East of 36 Threshold	1.5 miles
Alternative E–Northeast of 18 Threshold	0.7 miles

6.4 Wetlands Impacts

Alternative C is located in the Twister Creek wetland complex. Alternative E is located in an area adjacent to the Twister Creek wetland complex, but it does not appear to be located in any wetlands. House cleaning may occur in the wetland to make the helipad and runway intervisible.

Alternative C has design features incorporated into it to minimize wetlands impacts. The geometric layout of the heliport has been specifically designed to minimize the footprint

within the wetland. The access road is located as close to the runway as FAA design standards permit, and culverts would be placed in the embankment to maintain recharge of the wetland.

6.5 Hydraulics and Hydrology

According to the Hydrologic/Hydraulic Assessment Incomplete Draft (ADOT&PF, 2001a), Alternative C is located entirely within the 100-year floodplain (Exhibit 11). The depth of the floodwater near Alternative C would be about 1 ft. Alternative E is partially located within the 100-year floodplain. The depth of floodwater in this area would be about 3 to 4 ft during the 100-year flood. Both alternatives could be designed such that the new facilities are constructed above the level of the 100-year flood. Any backwater effect created by the construction would not likely affect any existing improvements.

6.6 Land-Use Impacts

ADOT&PF does not have a comprehensive airport management plan that details airport land use. However, land use within the existing airport property is strictly airport related. Both Alternates C and E are located within the existing airport property, and are therefore in areas dedicated for airport use.

Existing trails are located on airport property are used by local residents for recreation. Both Alternative C and Alternative E are located adjacent to these trails.

6.7 Rough Order of Magnitude Construction Costs

Rough Order of Magnitude (ROM) construction costs for each alternative vary due to differing clearing areas and access road lengths. Alternative C costs are higher due to site location in a wetland area and a longer access road. Table 16 shows construction costs for each alternative. Appendix E includes detailed construction cost estimates.

TABLE 16
Rough Order of Magnitude Construction Costs

Alternative	Construction Cost
Alternative C–East of 36 Threshold	$2,600,000
Alternative E–Northeast of 18 Threshold	$2,900,000

6.8 Rough Order of Magnitude Maintenance and Operations Costs

ADOT&PF provides personnel and equipment to maintain Talkeetna Airport. According to ADOT&PF, maintenance costs at Talkeetna Airport for fiscal year 2001 totaled $260,000 (Appendix A). Additional airport development will cause this cost to escalate, as will developing a new heliport.

Differences in maintenance costs between Alternatives C and E would vary primarily because of differing maintenance costs for the proposed access road. Although Alternative C is located farther from the existing M&O facility than Alternative E, Alternative E would involve constructing a longer access road than Alternative C. This results in M&O costs being far greater for Alternative E than Alternative C. Table 17 lists maintenance costs associated with each development alternative.

TABLE 17
Heliport Maintenance and Operations Costs

Alternative	Rough Order of Magnitude Maintenance and Operations Costs (2001 dollars)
Alternative C–East of 36 Threshold	$60,000
Alternative E–Northeast of 18 Threshold	$80,000

6.9 Site Visibility

Since Talkeetna Airport does not have an ATCT, maintaining visibility between the TLOF and Runway 18/36 is critical to preserving aviation safety. The existing treed areas between

the TLOF and the entire runway would be cleared under both alternatives. Alternative C is immediately adjacent to the runway. Alternative E is located to the north of the runway.

6.10 Meeting FAA Standards

Alternative C meets all FAA design standards, except for the separation to the sewage lagoon. Alternative E has air space conflicts with Christiansen Lake, which proper airport management procedures can mitigate, and does not meet the minimum requirements for separation to the sewage lagoon.

SECTION 7

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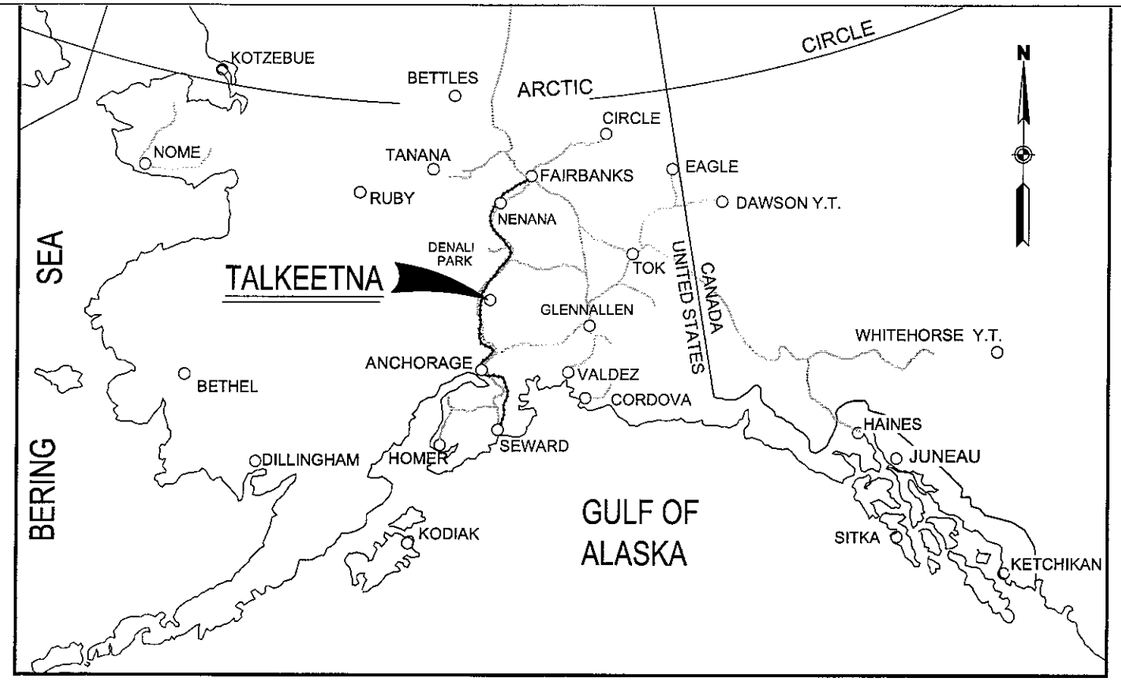

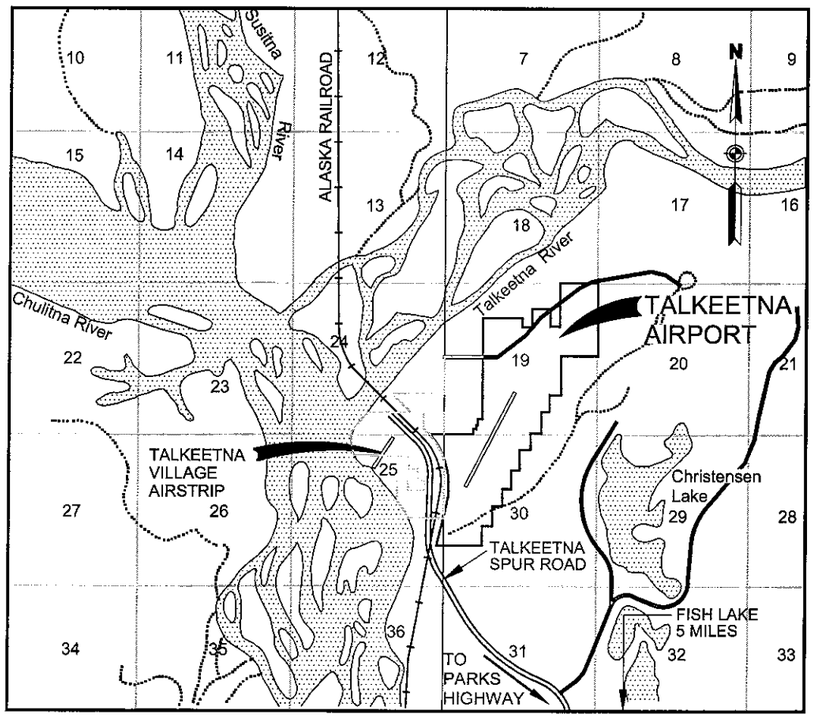

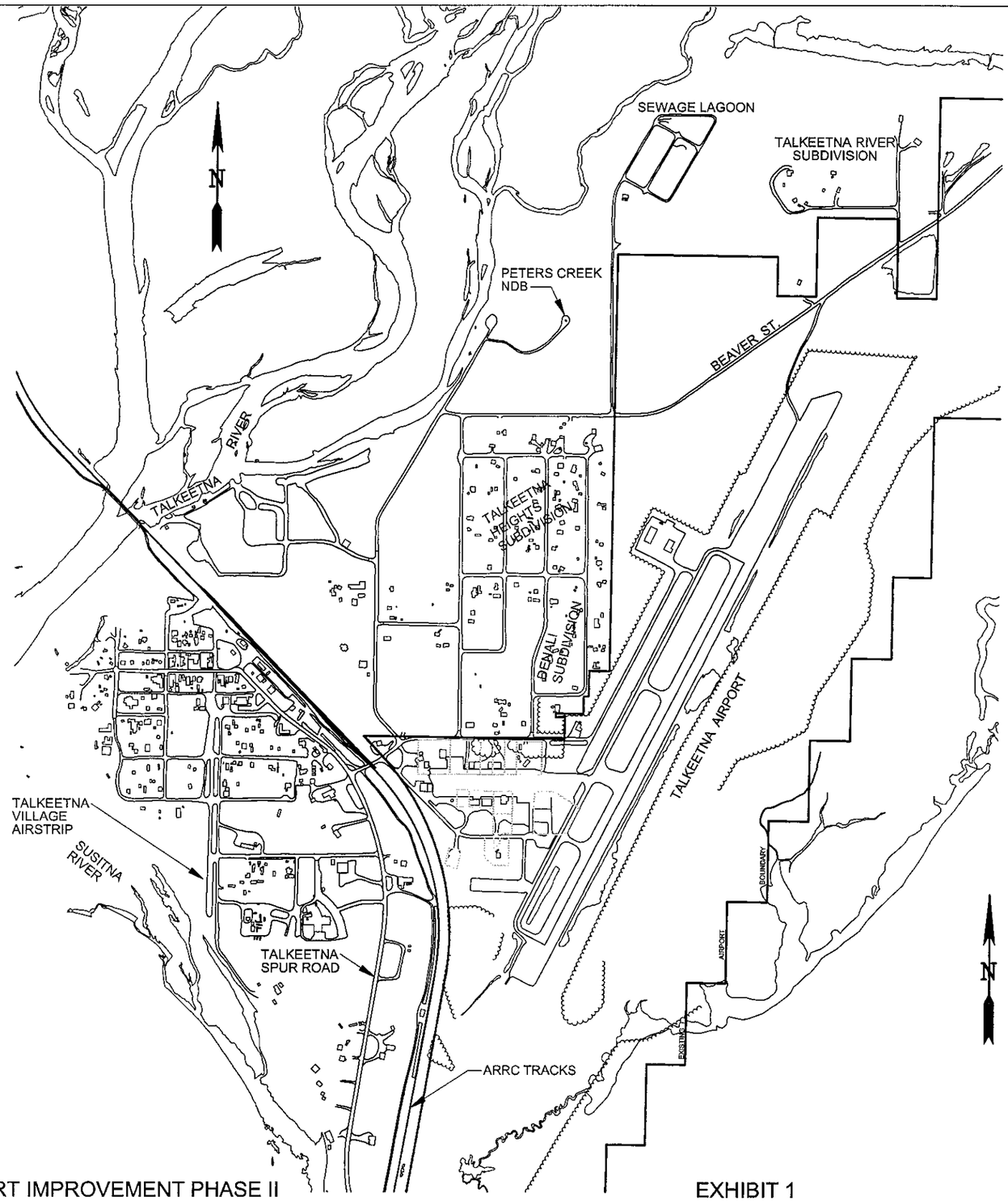

TALKEETNA AIRPORT IMPROVEMENT PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 1
LOCATION AND VICINITY MAPS

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TRANSPORTATION & PUBLIC FACILITIES
STATE OF ALASKA

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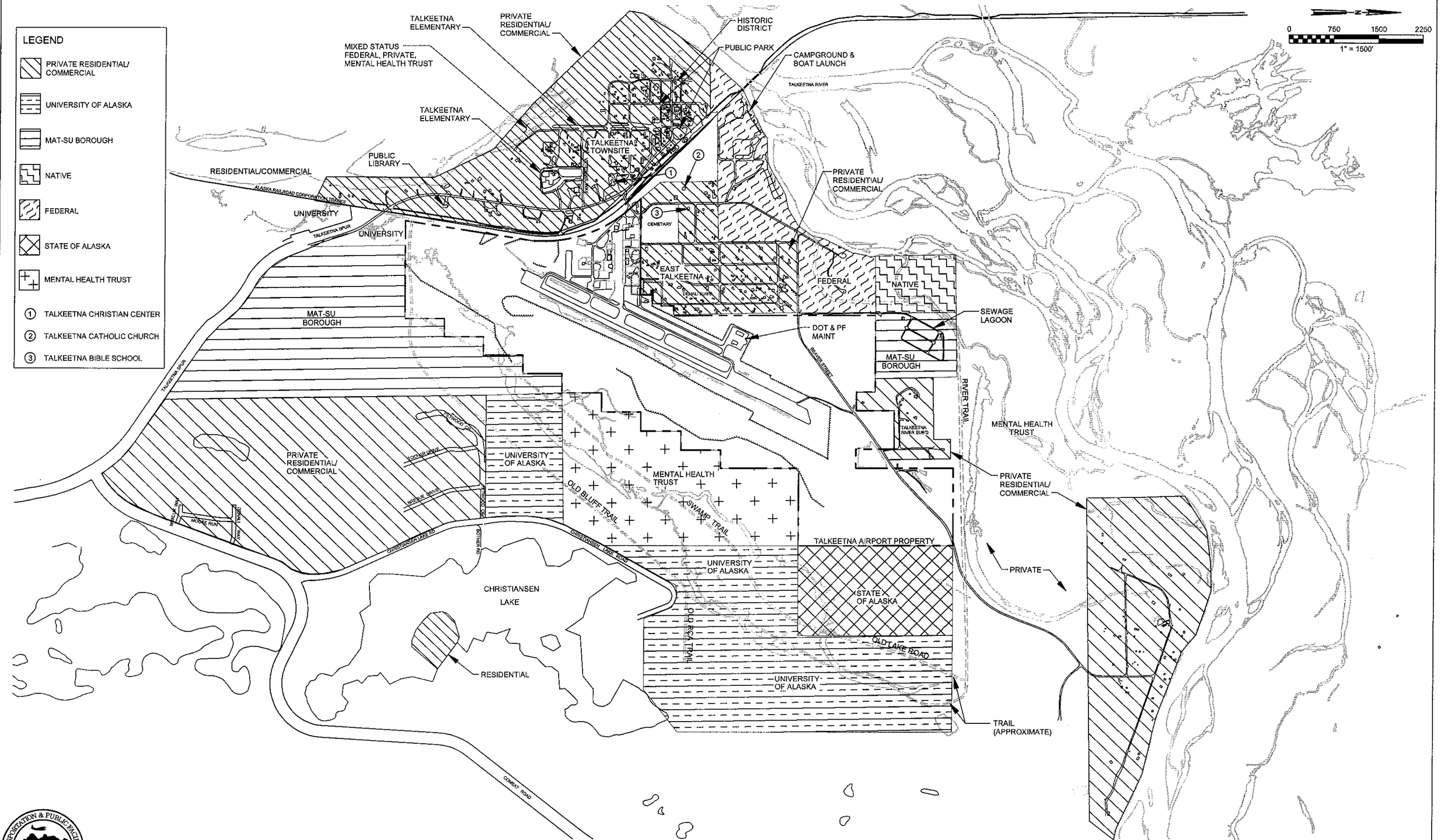
TALKEETNA AIRPORT IMPROVEMENTS PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 2
EXISTING HELIPORT SHOWING ISSUES



TALKEETNA AIRPORT IMPROVEMENT PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 3
GENERAL LAND STATUS AND LAND USE

CH2MHILL

TRANSPORTATION & PUBLIC FACILITIES STATE OF ALASKA

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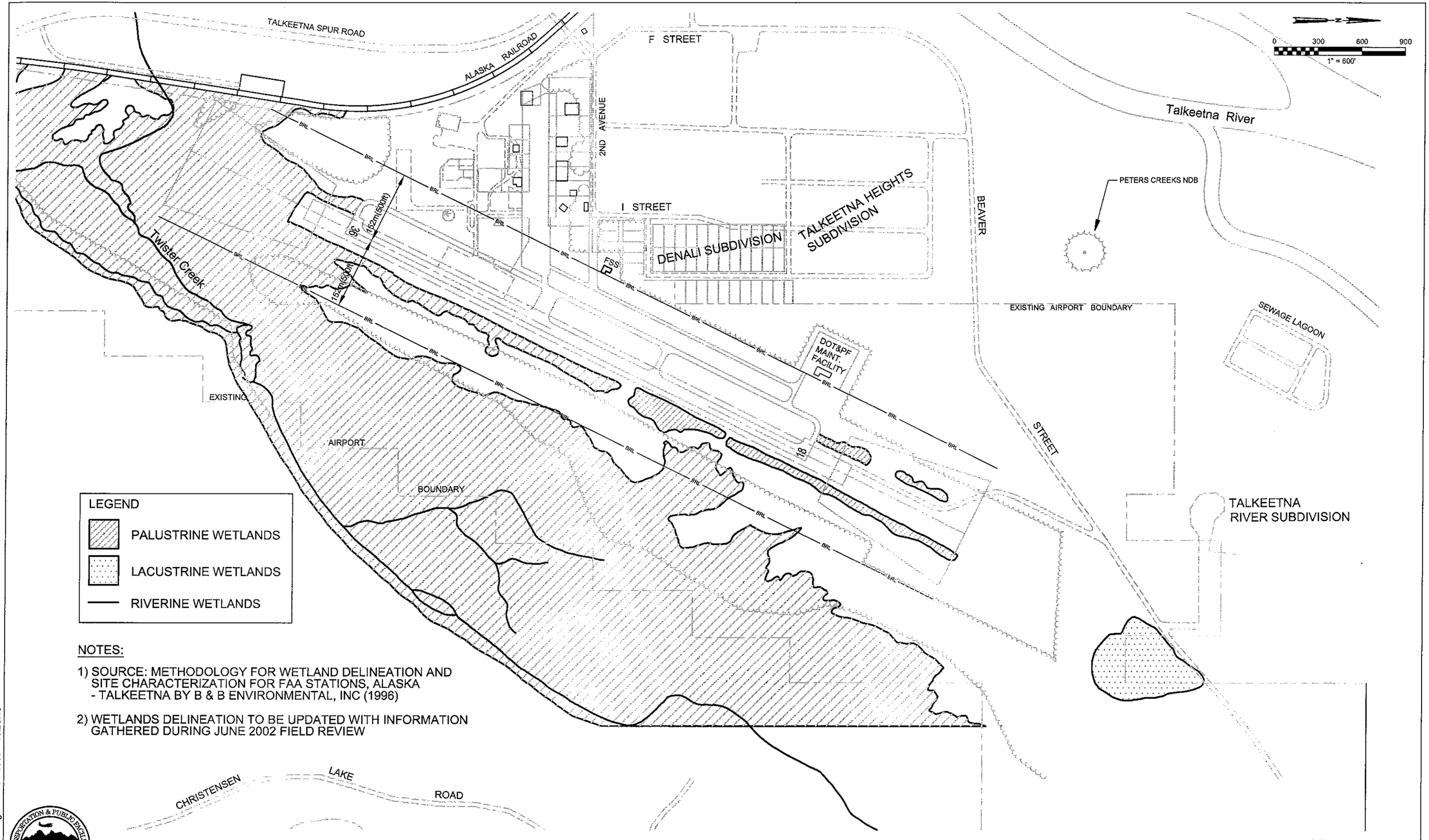

LEGEND

- PALUSTRINE WETLANDS
- LACUSTRINE WETLANDS
- RIVERINE WETLANDS

NOTES:

1) SOURCE: METHODOLOGY FOR WETLAND DELINEATION AND SITE CHARACTERIZATION FOR FAA STATIONS, ALASKA - TALKEETNA BY B & B ENVIRONMENTAL, INC (1996)

2) WETLANDS DELINEATION TO BE UPDATED WITH INFORMATION GATHERED DURING JUNE 2002 FIELD REVIEW

CHRISTENSEN LAKE ROAD

TRANSPORTATION & PUBLIC FACILITIES STATE OF ALASKA

CH2MHILL

TALKEETNA AIRPORT IMPROVEMENTS PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 4
WETLANDS

167651 xibit04.dwg 11-Jan-2003 10:25:46

ARRC TRACKS

EXISTING HELIPORT AND HELICOPTER PARKING

SEASONAL NPS LEASE

CLOSED LANDFILL

ERA SEASONAL LEASE

EXISTING COMMERCIAL APRON

EXISTING TAXILOTS

2ND AVENUE

F STREET

TALKEETNA RIVER

TALKEETNA RIVER

BEAVER CREEK

STREET

TALKEETNA HEIGHTS SUBDIVISION

DENALI SUBDIVISION

PETERS CREEK NDB

TWISTER CREEK

135'

3500' x 75' RUNWAY

PARALLEL TAXIWAY

4100' x 150' RUNWAY SAFETY AREA

100'

DOT & PF M&O FACILITY

SEWAGE LAGOON

STREET

CLOSED LANDFILL

EXISTING AIRPORT BOUNDARY

TALKEETNA RIVER SUBDIVISION

BRL

1000'

0 300 600 900

1" = 600'

LEGEND

100 YEAR FLOODPLAIN

TALKEETNA AIRPORT IMPROVEMENTS PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 5
100 YEAR FLOODPLAIN

TRANSPORTATION & PUBLIC FACILITIES STATE OF ALASKA

CH2MHILL

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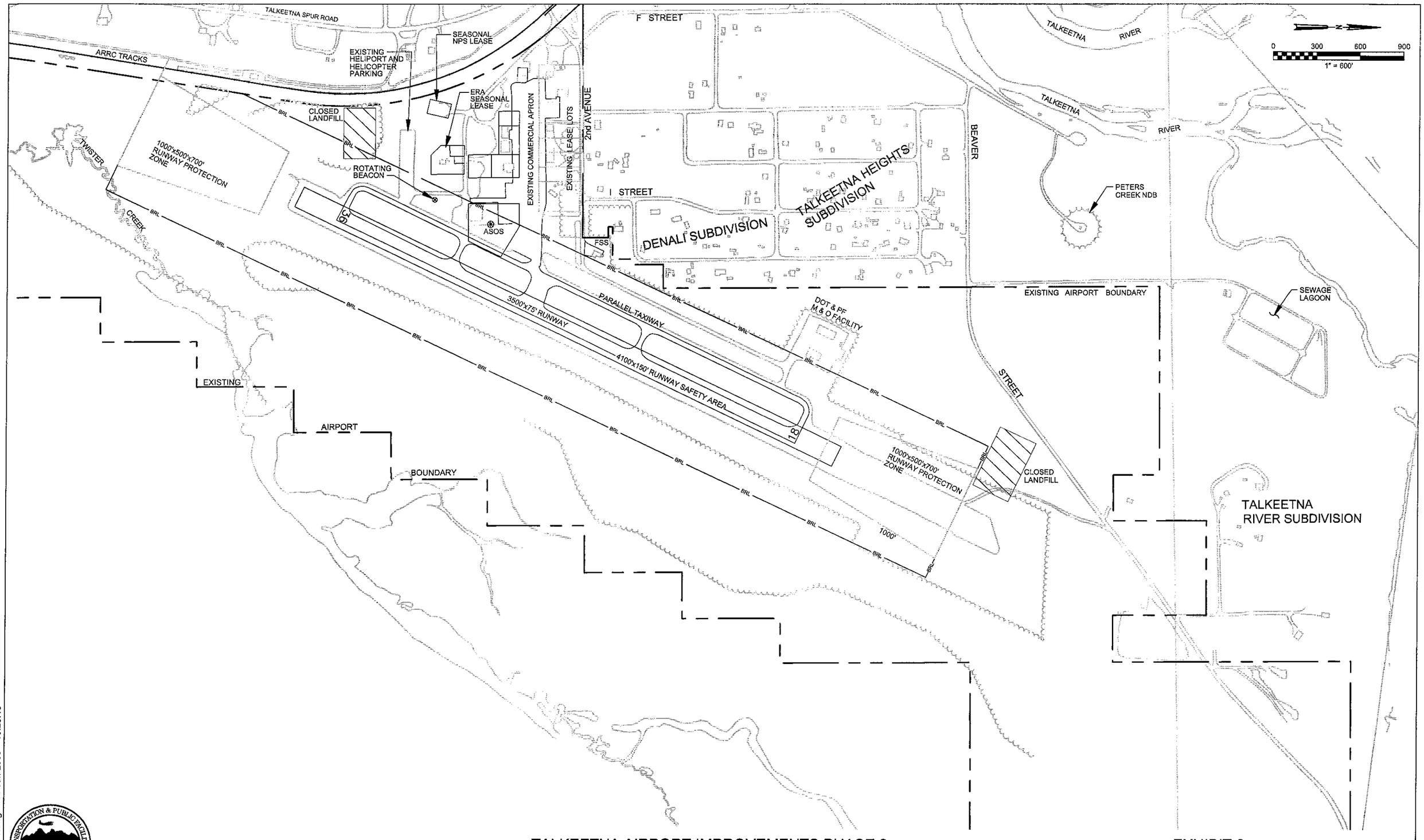

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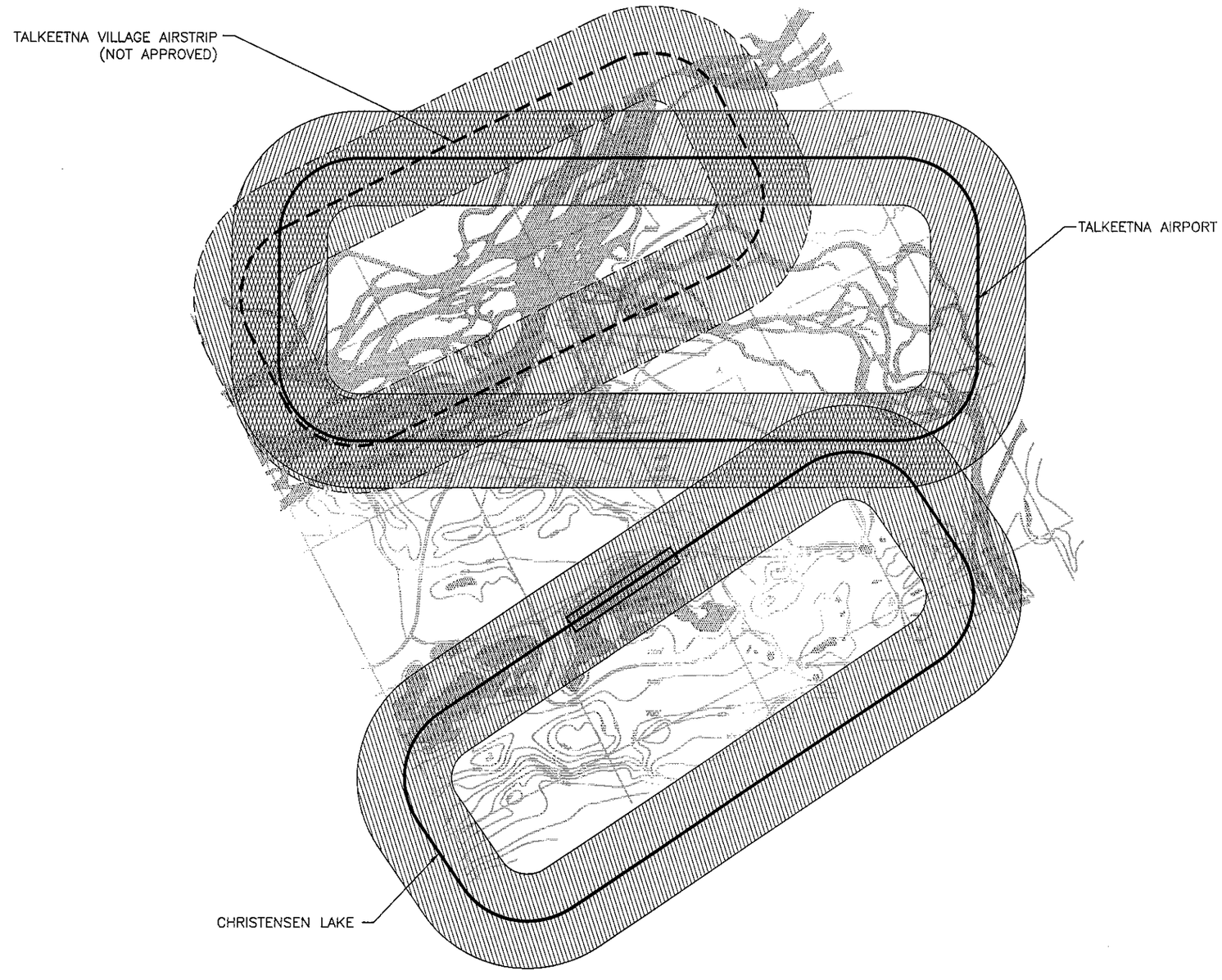
CH2MHILL

TALKEETNA AIRPORT IMPROVEMENTS PHASE 2
HELIPORT RELOCATION STUDY

EXHIBIT 6
EXISTING AVIATION FACILITIES



GRAPHIC SCALE
2000 0 1000 2000 4000 8000
(IN FEET)
SCALE: 1 inch = 2000

TALKEETNA AIRPORT IMPROVEMENTS PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 7
AIRPORT TRAFFIC PATTERNS

CH2MHILL

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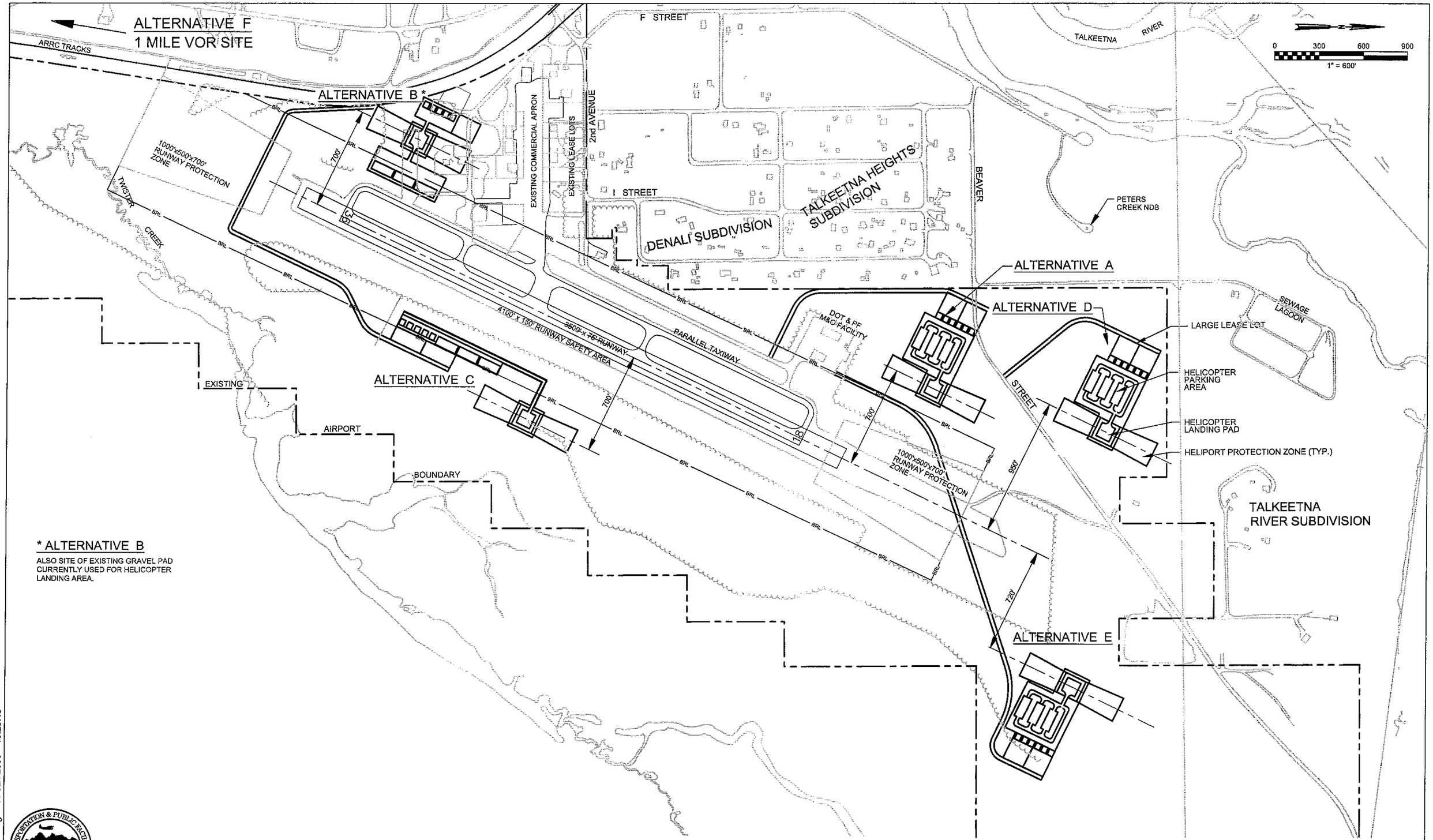

* ALTERNATIVE B

ALSO SITE OF EXISTING GRAVEL PAD CURRENTLY USED FOR HELICOPTER LANDING AREA.

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CH2MHILL

TALKEETNA AIRPORT IMPROVEMENTS PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 8
ALTERNATIVES A, B, C, D & E

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CH2MHILL

TALKEETNA AIRPORT IMPROVEMENTS PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 9
ALTERNATIVE F

TALKEETNA SPUR ROAD
ARRC TRACKS
EXISTING HELIPORT AND HELICOPTER PARKING
SEASONAL NPS LEASE
ERA SEASONAL LEASE
CLOSED LANDFILL
1000'x600'x700' RUNWAY PROTECTION ZONE
TWISTER CREEK
EXISTING COMMERCIAL APRON
EXISTING LEASE LOTS
F STREET
2nd AVENUE
I STREET
FSS
DENALI SUBDIVISION
TALKEETNA HEIGHTS SUBDIVISION
BEAVER
TALKEETNA RIVER
PETERS CREEK NDB
0 300 600 900
1" = 600'
EXISTING AIRPORT BOUNDARY
SEWAGE LAGOON
9C
3600' x 75' RUNWAY
1000' x 150' RUNWAY SAFETY AREA
PARALLEL TAXIWAY
27
DOT & PF M&O FACILITY
STREET
1000'x500'x700' RUNWAY PROTECTION ZONE
CLOSED LANDFILL
EXISTING AIRPORT BOUNDARY
ALTERNATIVE C
TALKEETNA RIVER SUBDIVISION
ALTERNATIVE E

LEGEND:

HELICOPTER FLIGHT TRACK

FIXED-WING FLIGHT TRACK

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TRANSPORTATION & PUBLIC FACILITIES STATE OF ALASKA

CH2MHILL

TALKEETNA AIRPORT IMPROVEMENTS PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT 10
FUTURE HELICOPTER AND FIXED-WING FLIGHT TRACKS

ARRC TRACKS

EXISTING HELIPORT AND HELICOPTER PARKING

SEASONAL NPS LEASE

CLOSED LANDFILL

CLOSED LANDFILL

ERA SEASONAL LEASE

EXISTING COMMERCIAL APRON

EXISTING LEASELOTS

2nd AVENUE

F STREET

TALKEETNA RIVER

TALKEETNA RIVER

BEAVER

STREET

TWISTER CREEK

SCC

DENALI SUBDIVISION

TALKEETNA HEIGHTS SUBDIVISION

PETERS CREEK NDB

3500' x 75' RUNWAY

PARALLEL TAXIWAY

4100' x 150' RUNWAY SAFETY AREA

DOT & PF M&O FACILITY

SEWAGE LAGOON

STREET

CLOSED LANDFILL

TALKEETNA RIVER SUBDIVISION

EXISTING AIRPORT BOUNDARY

ALTERNATIVE C

ALTERNATIVE E

0 300 600 900

1" = 600'

LEGEND

100 YEAR FLOODPLAIN

TALKEETNA AIRPORT IMPROVEMENTS PHASE II
HELIPORT RELOCATION STUDY

EXHIBIT11
ALTERNATIVES C AND E
& 100 YEAR FLOODPLAIN

TRANSPORTATION & PUBLIC FACILITIES STATE OF ALASKA

CH2MHILL

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Appendix A
Correspondence

Appendix A Table of Contents

U.S. Department
of Transportation
Federal Aviation
Administration

Alaskan Region

222 W. 7th Avenue #14
Anchorage, Alaska
99513-7587

August 8, 1996

K. Chris Kepler, P.E.
MatSu District Superintendent, State of Alaska DOTPF

4111 Aviation Avenue
Anchorage, Alaska 99519-6900

Dear Mr. Kepler:

Talkeetna Airport
Case # 96-AAL-002NRA

The Federal Aviation Administration (FAA) has completed an aeronautical study on your proposal to change the traffic pattern for runway 18 to a right hand traffic pattern at the Talkeetna Airport.

We have completed the circularization to the public on the above aeronautical study. A total of nine responses were received; 8 were favorable and one thought the proposal compromised safety by the potential for head-on traffic.

During the course of the airspace study it was learned that the Talkeetna Village Airstrip was active. This necessitated including this airspace into the overall study. It soon became apparent that the airspace for the two airports were in direct conflict. Since the Village airstrip is private use, an agreement would have to be reached with the State of Alaska, DOT/PF to allow concurrent use of the two airports.

Conditional Determination. The FAA does not have any aeronautical objections to your proposal, under the following conditions.

TALKEETNA AIRPORT MANAGEMENT (State of Alaska, DOT/PF)

1. Enter into an agreement with the Talkeetna Airmen's Association outlining conditions of use for the Village airstrip.

2. Change the Talkeetna Airport pattern altitude to 1000 feet Above Ground Level (AGL) and publish it in the Airport Remarks section of the Alaska Supplement with the following additional restrictions:

The FAA cannot prevent the construction of structures near an airport. The airport environs can only be protected through such means as local zoning ordinances or acquisition of property rights.

Recommendations.

Obstructions. Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace, provides guidance and standards regarding objects in the vicinity of an airport that are considered obstructions to air navigation. The FAA cannot be aware of all structures, objects, and terrain features associated with every private use, privately owned airport. However, we recommend that you analyze the environment of your proposed facility using the criteria of FAR Part 77, in order to determine which objects, if any, should be considered obstructions. We also recommend that any such obstructions in the vicinity of your facility be eliminated, relocated, or appropriately mitigated (by means of displaced thresholds, obstruction marking and lighting, etc.), in order to enhance the safety of flight operations at your airport.

Determination Void Date. In order to avoid placing any unfair restrictions on users of the navigable airspace, this determination of "no objection" is valid until February 15,1997. Should the agreements and other conditions outlined above not be established by this date, an extension of our determination should be requested in writing.

Project Completion. Please notify the FAA within 15 days of the completion of the project. Such notification should be by means of an updated FAA Form 5010-5, Airport Master Record, which is used to enhance aviation safety by the collection of accurate aeronautical information.

Airport Safety Data Program. The collection and dissemination of accurate, complete, and timely aeronautical information is part of the FAA mission. The Airport Safety Data Program has been established to accomplish this mission in connection with airport facilities. Upon notification of the completion of the conditions outlined above by means of a completed Master Record Form, your facility will be entered in this program. On a yearly basis, you will receive a printed copy of the data kept on file for your facility. Your response to these mail solicitations is important, since this provides the opportunity for you to make appropriate revisions and corrections to the information on file. Of course, you can update this information at any time by notifying our office.

Future Alterations. Major changes in the physical layout or features of your facility should be reported using FAA Form 7480-1, Notice of Landing Area Proposal. The realignment or lengthening of existing runways, and the addition of new runways, helipads, and other landing areas, are among the changes that are considered alterations, and thus require the submittal of this form. If you have any questions concerning which changes should be reported in this manner, please contact our office. For your records, we are enclosing a copy of your previously submitted form 7480-1, which may include minor editorial revisions or additions.

a. Aircraft departing runway 18 should climb straight ahead to at least 1000 feet AGL before turning west bound to avoid Village strip traffic operating at 500 feet AGL or less.

b. Aircraft arriving runway 36 should maintain at least 1000 feet AGL until turning final to avoid Village strip traffic operating at 500 feet AGL or less.

3. Add the following sentence (or something similar) to the Airport Remarks section of the Alaska Supplement: "Common Traffic Advisory Frequency (CTAF) procedures are highly recommended due to the an underlying traffic pattern."

4. Install appropriate Traffic Pattern Indicators.

5. Provide users with a bulletin outlining changes and the need for compliance with pattern altitudes and conditions.

VILLAGE AIRSTRIP MANAGEMENT (Talkeetna Airmen's Association/BLM)

1. Enter into a Letter of Agreement (LOA) with Talkeetna Airport Management outlining the following operating conditions:

All Talkeetna Village Airstrip traffic shall remain to the West of the airstrip over the Susitna River. Aircraft arriving and departing shall remain at or below 500 feet Above Ground Level (AGL) when East of the West bank of the Susitna River. Aircraft shall remain well clear of the approach/departure course for runway 18/36 at the Talkeetna Airport.

2. Request that the Talkeetna Village Strip be added to the Alaska Supplement and the following Airport Remarks added:

Unattended, No itinerant operations are authorized unless prior written approval is received from the Talkeetna Airmen's Association, Inc., P.O. Box 489, Talkeetna, Alaska 99676. Telephone (907) 733-2723.

Failure to comply with these conditions will make this determination null and void.

This determination does not mean FAA approval or disapproval of the physical development involved in the proposal. Rather, it is a determination with respect to the safe and efficient use of airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effect the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA) and known natural objects within the affected area would have on the airport proposal.

If we can be of further assistance, please contact me, at 271-5454.

Sincerely,

Patricia A. Sullivan
Airport Planner, Airports Division

cc: FAA, Alaskan Region, Air Traffic Division, AAL-530
FAA, Alaskan Region, Safety and Standards Branch, AAL-620
FAA, Office of Airport Safety and Standards, AAS-330
Talkeetna Airmen's Association, P.O. Box 489, Talkeetna, Alaska 99676
Mark Mayo, Master Plan Project Manager, State of Alaska, DOTPF Central Region

Talkeetna Airport Manager (State of Alaska, Department of Transportation/Public Facilities) and Talkeetna Airmen's Association.

LETTER OF AGREEMENT

Effective:

SUBJECT: CONDITIONS OF USE: TALKEETNA VILLAGE AIRSTRIP

1. PURPOSE. To define the operating procedures and conditions of use for Talkeetna Village Airstrip.

2. SCOPE. This agreement is between the State of Alaska (operator of the Talkeetna Airport) and Talkeetna Airmen's Association.

3. RESPONSIBILITIES.

A. Talkeetna Airport Management shall:

1. Enter into a Letter of Agreement with Talkeetna Airmen's Association and update on an annual basis.

2. Publish recommended traffic pattern of 1000 feet Above Ground Level (AGL) and the following special operating procedures:

a. Aircraft departing runway 18 should climb straight ahead to at least 1000 feet AGL before turning west bound to avoid Village Strip traffic operating at 500 feet AGL or less.

b. Aircraft arriving runway 36 should maintain at least 1000 feet AGL until turning final to avoid Village Strip traffic operating at 500 feet AGL or less.

c. Add the following sentence (or something similar) to the Airport Remarks section of the Alaska Supplement; "Common Traffic Advisory Frequency (CTAF) procedures are highly recommended due to an underlying traffic pattern."

d. Provide users with a bulletin outlining changes and the need for compliance with pattern altitudes and conditions.

B. Talkeetna Airmen's Association shall:

1. Enter into a Letter of Agreement with Talkeetna Airport Management and update on an annual basis.

2. Ensure all Talkeetna Village Airstrip traffic will remain to the west of the airstrip over the Susitna River. Aircraft arriving and departing shall remain at or below 500 feet AGL when east of the west bank of the Susitna River. Aircraft shall remain well clear of the approach/departure course for runway 18/36 at the Talkeetna Airport.

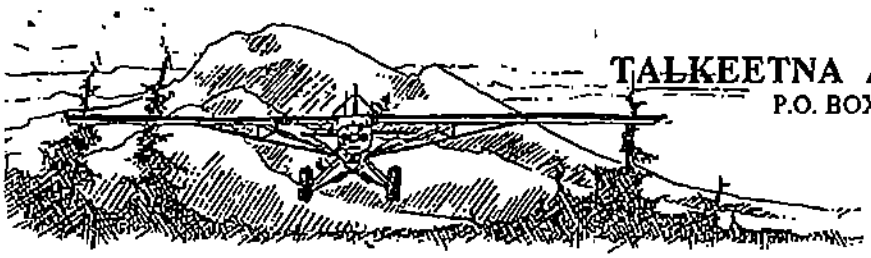
3. Request that the Talkeetna Village Strip be added to the Alaska Supplement and the following Airport Remarks be added:

"Unattended, no itinerant operations are authorized unless prior written approval is received from the

Talkeetna Airmen's Association, Inc., P.O. Box 489, Talkeetna, Alaska 99676. Telephone (907) 733-2723.

C. Failure to comply with the above conditions shall void this agreement.

Representative, Talkeetna Airmen's Association, Inc., Talkeetna, Alaska	Airport Manager Talkeetna, Alaska



TALKEETNA AIRMEN'S ASSOCIATION, INC.
P.O. BOX 489, TALKEETNA, ALASKA 99676

Nov. 10, 1998

FAA Alaskan Region
Air Traffic Division
222 W. 7th Ave., #14
Anchorage, AK
99513-7587

RE; Talkeetna Airspace Agreement

To; Jack Schommer

Jack;

Talkeetna Airmen's Association has read and agree with the operating conditions, airspace separation and responsibilities outlined in the letter of agreement. Talkeetna Airmen's Association will be responsible for contacting users of the Talkeetna Village Airstrip and notifying these users of the operating conditions and agreement concerning use of the Talkeetna Village Airstrip. Talkeetna Airmen's Association will provide users of the Talkeetna Village Airstrip with a copy of the operating conditions/letter of agreement. Thank you.

Robert Gerlach
President, Talkeetna Airmen's Association

Subject: Re: Talkeetna Airport
Date: Wed, 24 Jan 2001 16:08:35 -0900
From: Mark Mayo <mark_mayo@dot.state.ak.us> **Internal**
Organization: State of Alaska, Department of Transportation
To: Chris Kepler <chris_kepler@dot.state.ak.us>
CC: Gary E Lincoln <gary_lincoln@dot.state.ak.us>,
Kurt E Devon <kurt_devon@dot.state.ak.us>,
Don W Baxter <don_baxter@dot.state.ak.us>,
David E Post <david_post@dot.state.ak.us>

Chris;

Access to the NE heliport site would be via the existing Beaver Street which is outside the runway safety area. Regarding the existing helipad, problems include noise & dust impacts to business and residential property to the west and north, proximity to existing and future fixed wing parking and operational areas, and perhaps most importantly, the potential for mid-air collisions with aircraft on approach to runway 36. While this may sound far fetched at first, it was identified by Doug Geeting as a situation that has already caused a couple of near misses.

Chinooks departing the airport need to conduct hoover tests before leaving the airport area to make sure their equipment is operating properly. Since the testing must be done at low altitude, it is conducted over Twister Creek where there is no development. When the helicopters lift off the existing helipad and hoover taxi across the threshold area for runway 36 to do the testing, Geeting says they are not always visible. Aircraft on approach have trouble seeing them, and neither the aircraft nor the helicopter is very maneuverable at low speed and altitude. We need to put the heliport somewhere so the helicopters can get to an undeveloped area to conduct their hover testing without conflicting with fixed winged aircraft on approach.

Mark

Chris Kepler wrote:

> *I have a big teleconference at 2pm tomorrow with Facilities. I am curious*
> *about how they expect vehicles to get to a helipad located at the*
> *northeastern site? That would mean a acces road past the end of the RW and*
> *that is not a good idea. What is wrong with the current helipad except that*
> *Leasing probably wants the land for more lease sites?*
>
> *Kurt, you should and probably have gotten Steve Hanson involved in this*
> *discussion.*
>
> *Mark is right that we do not want to get cross-wise the FAA on the air*
> *traffic pattern issue again in regards to the Village strip, etc. That has*
> *been dealt with a lot.*
>
> *Chris Kepler*
>
> *Mark Mayo wrote:*
>
> > *I will be going to FAA tomorrow (Thursday) at 1:30 in the Airport*
> > *Division conference room to discuss an air space/air traffic issue*
> > *regarding Talkeetna Airport and the Talkeetna Airport Master Plan. You*
> > *are invited to attend if interested.*
> >
> > *Here's the background. The draft Airport Master Plan (AMP) currently*
> > *proposes the construction of a heliport at the airport's*
> > *northewestern-most corner, just north of Beaver Street and just south of*
> > *the sewage lagoon. Some residents of Talkeetna River Subdivision, which*

> > *is on the north end of the airport, have very recently protested this*
> > *location. They would like us to consider locating the heliport at the*
> > *airport's northeastern-most corner instead.*
> >
> > *FAA tells me that, aside from other site considerations, locating the*
> > *heliport at the northeast corner of the airport may require the*
> > *airport's existing traffic pattern to be changed, which may put it into*
> > *conflict with the traffic pattern for the Talkeetna Village Airstrip.*
> > *This sounds like a repeat of the traffic pattern discussions we had with*
> > *FAA about 3 or 4 years ago. I don't understand the issue as well as I*
> > *should, and it is a topic that is almost certain to come up at the next*
> > *(and I hope - final) AMP public meeting in Talkeetna (March 14), so I am*
> > *looking forward to the FAA meeting this Thursday as an opportunity "get*
> > *smarter" on the issue.*
> >
> > *FAA has already told me that, if the pattern for Talkeetna Airport*
> > *changes, they will require the State to enter into an agreement with the*
> > *operators at the Talkeetna Village Airstrip to manage airspace over the*
> > *two airports. We declined such an agreement 3 or 4 years ago; I assume*
> > *our position hasn't changed.*
> >
> > *If you need a ride to the meeting from the Aviation Building, let me*
> > *know. Please contact me if you have questions or concerns.*

Mark Mayo <MARK_MAYO@DOT.STATE.AK.US>
TRANSPORATION PLANNER
Alaska Department of Transportation & Public Facilities
Central Region Planning

167657
Heliport

Cinelli, Steve /ANC

From: Lance Mearig [Lance@uskh.com]
Sent: February 27, 2001 1:25 PM
To: jerold.bastian@wainwright.army.mil
Cc: eede@uskh.com
Subject: Re: Talkeetna Airport Master Plan -- New Heliport Location

Major Bastian,

Thanks for your comments. Do you have any information on protection of other aircraft from CH-47 rotor wash? A commercial operator who will likely be using the heliport is concerned about the effects on his parked aircraft.

Rotor wash factors into the decision to relocate the heliport. It makes sense to develop lease lots near the main apron, which potentially places other parked aircraft and ground operations very near to the site you currently use. Another factor is placing the heliport at a location to allow simultaneous operations from the heliport and runway - which becomes more important in future years as traffic increases.

We realize that the proposed location is not within easy walking distance of Talkeetna. Would the Army consider stationing a vehicle at the heliport for use by the flight crews?

Lance

>>> "Bastian Jerold D MAJ 4-123 BN S3 OIC(n)" <jerold.bastian@wainwright.army.mil> 02/27/01 1:06P >>>
Mr. Mearig,

We reviewed the Talkeetna Airport Master Plan and New Heliport Location that Mr. Steven D. Cinelli fax'd to me last week.

Here is the response from my safety officer. "A review of the site sketch of the proposed helipad and the applicable FM's / TM's indicate that the new helipad proposed at Talkeetna should be able to support Army helicopter operations.

From the information on the sketch we should be able to support 2 possibly 3 CH-47's or 3 possibly 4 UH-60's. The uncertainty comes from unknowns related to size / position of pads and the presence of any obstacles adjacent to the Helicopter parking apron.

The applicable pubs are TM 5-803-4 PLANNING OF ARMY AVIATION FACILITIES and FM 10-67-1 CONCEPTS AND EQUIPMENT OF PETROLEUM OPERATIONS. Undoubtedly there are FAA, DOT and other applicable Federal Reg's as well, but I am not familiar with those documents."

On a regular basis, we do bring more aircraft to Talkeetna than 2 CH47's. We really need space for 3 CH47's. Each year during April we bring 3 - 4 CH47's to Talkeetna for a three week period of time. We are very satisfied with the current location that we park the aircraft. It is convient to walk to and from the lodge for meals. We'd like to stay within walking distance.

Thoughts?

Jer

16-1601
Heliport

Talkeetna Airport Master Plan
Public Meeting in Talkeetna
March 14, 2001

Meeting Summary

Laurie Mulcahy (DOT&PF Environmental), Patti Sullivan (FAA Airports Division), and Mark Mayo (DOT&PF Planning) met with Billy FitzGerald (Chairman, Talkeetna Community Council) at 2:30pm at the Latitude Restaurant. Mr. FitzGerald said that aircraft noise is a major concern in the community. He urged that future airport expansion be designed to incorporate noise abatement measures whenever possible. He also identified an existing or proposed Borough bird sanctuary in the area immediately south of the proposed NE heliport (Alt #6).

Don Baxter (DOT&PF Aviation Design) and Paul Janke (DOT&PF Hydrologist) met with Doug Geeting and Jock Bondurant at about the same time for a flight over the airport. Mr. Geeting informed Mr. Baxter and Mr. Janke that he was concerned that the proposed drainage swale, as depicted on preliminary drawings, would run through his existing hangar. Mr. Baxter and Mr. Janke assured Mr. Geeting the alignment of the drainage swale was only conceptual at this stage, and subject to modification. More importantly, Mr. Geeting was informed that the swale was only one of at least two flood mitigation alternatives to be considered, and that several questions had surfaced regarding the feasibility of drainage swale alternative. Mr. Geeting was also informed that there would be opportunities for him to express his comments during the forthcoming flood mitigation studies. Mr. Baxter and Mr. Janke flew over the airport and Talkeetna River with Mr. Bondurant and conducted a vehicular inspection of the airport with ADOT/PF maintenance personnel prior to the public meeting.

The meeting started at 3:30pm in the Talkeetna Elementary School multipurpose room and was conducted using an open-house format. A sign-in sheet and handouts were placed at the entrance to the meeting room. Illustrations of Alternatives 5 and 6, a map showing the 100-year flood plain at the airport, and aerial photographs of the airport were displayed on tripods. Additional maps were displayed on long tables. A mail-in comment sheet was also provided for anyone who wanted to provide comments or suggestions after the meeting. Comments will be accepted until April 16, 2001.

Airport noise in the adjacent subdivision and the community in general continues to be a primary issue. Concerns were expressed especially by a number of residents along Easy Street with the continued airport expansion towards the subdivision. Some residents wondered whether there was a growth ceiling for maximum airplane and helicopter operations capacity at the airport.

Three potential heliport locations were discussed: the Northwest location (Alt. #5), the Northeast location (Alt #6) and a site identified during the meeting, the VOR site (about 1 mile south-southwest of the airport). The NW location was seen as objectionable by some due to the proximity of residential development. It was pointed out that the NE heliport location might conflict with floatplane and ski aircraft approaching or departing Christiansen Lake from the north. It was also mentioned that a major hotel (Marriot?) may be constructed in the near future on the north or west shore of the lake, about ½ to ¾ of a mile from the proposed NE heliport. Noise impacts from the heliport may be seen as objectionable by the developer. The VOR site has the apparent advantage of being further removed from residential and commercial land uses, which would tend to reduce noise impacts. Fuel services would still be available via truck-tanker.

We clarified that prior to any Short-Term Phase airport development, DOT&PF will prepare a hydrologic study. The study will evaluate impacts on the 100-year floodplain from a drainage swale and associated flood relief structures, an extension of the existing Alaska Railroad bridge over the Talkeetna River, or other appropriate floodplain mitigation measures. The floodplain mitigation will be constructed either before or concurrent with the initial Short-Term Phase airport development.
We also explained that the EA will be reevaluated during the next Short Term Phase airport development project. The design of the next project is scheduled to begin this year.

The access road to the proposed north apron, especially the section the east end of 2nd Avenue that will skirt the FSS, was identified as a concern to adjacent property owners. Their perception was that this alignment would produce an unacceptable level of traffic noise and vibration. We discussed the possibility of eliminating the "dog leg" connection of the alignment to 2nd Avenue by shifting the FSS south to another lot adjacent to the apron. Relocating the structure could incur extensive costs (including communication lines/cables) and requires FAA consultation. It was also suggested that the airport access be provided off of Beaver Street (in lieu of 2nd Ave.). This complicates maintenance access to the remainder of the airport. Concern was also voiced about the effect of the road on the 100 year flood elevation, and upon a sewer line running east-west in the easement running down the middle of Block 1, Talkeetna Heights Subdivision.

It was mentioned that the MatSu Borough leases lots on Christiansen Lake for the purpose of basing float plane operations. Although the Borough has apparently reduced the number of leases that it allows for this purpose, even if the Borough discontinues this practice entirely, private lots on the lake are still likely to be used for this purpose without some kind of comprehensive prohibition by the Borough.

The meeting was concluded at about 7:30 pm.

Alaska Department of Transportation and Public Facilities
Short-Term Phase
Talkeetna Airport Improvements
Project No. 54660
March 14, 2001

Construction as described in the December 2000 Talkeetna Airport Master Plan Environmental Assessment (EA) will take place in several phases. This project constructs the proposed Short-Term Phase improvements, which are scheduled to be constructed in 2002. (The EA is currently awaiting Federal Aviation Administration [FAA] approval, anticipated in Spring 2001.) Short-Term Phase Improvements listed below are numbered correspondingly to the attached project plan sheet.

1. Construct and pave a new 13,300 square meter commercial apron and associated apron access taxiway located at the southwest end of the runway.
2. Grade five lease lots abutting the new commercial apron on its north side.
3. Construct and pave a new commercial apron/lease lot access road running parallel to the apron and located on the north side of the five lease lots.
4. Pave the existing gravel access road that connects the new commercial apron/lease lot access road with the existing paved road connecting Talkeetna Spur Road with Second Avenue.
5. Construct and pave a new 4,200 square meter transient apron located northeast of the existing FAA Flight Service Station.
6. Construct and pave a new heliport apron and an associated vehicle parking area, and construct an embankment for a new heliport lease lot, all of which are located north of the existing runway. Install heliport lighting and a heliport windsock. (The final location of the heliport has yet to be confirmed, and such confirmation will be delayed until March of 2001.)
7. Construct and pave a new access road extending from the east end of Second Avenue to the existing ADOT&PF Maintenance and Operations (M&O) site, and on to the new heliport via Beaver Street.
8. Construct and pave a new general aviation auto parking area west of the new transient apron and on the west side of the new ADOT&PF M&O site access road.
9. Regrade the 45 meter by 90 meter runway safety area located at the northeast end of the runway to slope downward to the northeast.
10. Relocate the existing Automated Weather Observation System (AWOS) from the southwest end of the runway to the east side of the runway.
11. Relocate the existing segmented circle immediately to the northeast and provide it with a new windsock.
12. Construct security fencing along the northwest side of the airport to segregate aircraft operational areas from public access areas.
13. Relocate the existing Airport Rotating Beacon from the FAA Flight Service Station to the existing ADOT&PF M&O site.

Conditions of FAA approval of the December 2000 Talkeetna Airport Master Plan EA:

* Prior to constructing any Short-Term Phase airport development, ADOT&PF will prepare a hydrologic study. This study will evaluate impacts on the 100-year floodplain from a drainage swale and associated flood relief structures, an extension of the existing Alaska Railroad bridge over the Talkeetna River, or other appropriate floodplain mitigation measures.
* The floodplain mitigation will be constructed either before or concurrent with the initial Short-Term Phase airport development.

Anticipated schedule for the Talkeetna Airport Improvements Short-Term Phase Project (to also include a public involvement plan with opportunities for public and agency meetings):

* Begin Design Effort:	May 2001
* Begin EA reevaluation:	October 2001
* EA reevalutation approval:	February 2002
* Complete Flood Mitigation Design:	mid April 2002
* Complete Airport Improvements Design:	April 2002
* Project Construction:	FFY 2002

The schedule is subject to revision depending upon outcome of floodplain mitigation studies.

Talkeetna Airport Master Plan
Public Meeting in Talkeetna
March 14, 2001

Meeting Summary

Laurie Mulcahy (DOT&PF Environmental), Patti Sullivan (FAA Airports Division), and I met with Billy FitzGerald (Chairman, Talkeetna Community Council) at 2:30pm at the Latitude Restaurant. Don Baxter (DOT&PF Aviation Design) and Paul Janke (DOT&PF Hydrologist) met with Doug Geeting and Jock Bondurant at about the same time for a flight over the airport.

Billy FitzGerald said that aircraft noise is a major concern in the community. He urged that future airport expansion be designed to incorporate noise abatement measures whenever possible. He also identified an existing or proposed Borough bird sanctuary in the area immediately south of the proposed NE heliport (Alt #6). [Other information from our conversation with Billy?]

[Summary of Don and Paul's meeting/flight with Geeting and Bondurant?]

The meeting started at 3:30pm in the Talkeetna Elementary School multipurpose room. The meeting was conducted using an open-house format. A sign-in sheet and handouts were placed at the entrance to the meeting room. Illustrations of Alternatives 5 and 6, a map showing the 100-year flood plain at the airport, and aerial photographs of the airport were displayed on tripods. Additional maps were displayed on long tables. A mail-in comment sheet was also provided for anyone who wanted to provide comments or suggestions after the meeting. Comments will be accepted until April 16, 2001.

During the meeting it was pointed out that the NE heliport location (Alt #6) might conflict with floatplane and ski aircraft approaching or departing Christiansen Lake from the north. It was also mentioned that a major hotel (Marriot?) may be constructed in the near future on the north or west shore of the lake, about ½ to ¾ of a mile from the proposed NE heliport. Noise impacts from the heliport may be seen as objectionable by the developer. It was suggested that the VOR site just south of the airport be considered for the heliport. The VOR site has the apparent advantage of being further removed from residential and commercial land uses, which would tend to reduce noise impacts. Fuel services would still be available via truck-tanker.

The access road to the proposed north apron, especially the section the east end of 2nd Avenue that will skirt the FSS, was identified as a concern to adjacent property owners. Their perception was that this alignment would produce an unacceptable level of traffic noise and vibration. Concern was also voiced about the effect of the road on the 100 year flood elevation, and upon a sewer line running east-west in the easement running down the middle of Block 1, Talkeetna Heights Subdivision.

It was mentioned that the MatSu Borough leases lots on Christiansen Lake for the purpose of basing float plane operations. Although the Borough has apparently reduced the number of leases that it allows for this purpose, even if the Borough discontinues this practice entirely, private lots on the lake are still likely to be used for this purpose without some kind of comprehensive prohibition by the Borough.

Mr. Geeting informed Mr. Baxter and Mr. Janke that he was concerned that the proposed drainage swale, as depicted on drawings, would run through his existing hangar. Mr. Baxter and Mr. Janke assured Mr. Geeting the alignment of the drainage swale was only conceptual at this stage, and subject to modification. More importantly, Mr. Geeting was informed that the swale was only one of at least two flood mitigation alternatives to be considered, and that several questions had surfaced regarding the feasibility of drainage swale alternative. Mr. Geeting was also informed that there would be opportunities for him to express his comments during the forthcoming flood mitigation studies. Mr. Baxter and Mr. Janke flew over the airport and Talkeetna River with Mr. Bondurant and conducted a vehicular inspection of the airport with ADOT/PF maintenance personnel prior to the public meeting.

Transcription From Dan Baxter

907 733-2300 pg
Box 101 wk 733-2710
Talkeetna AK 99676
April 16, 2001
(fax) 733-2720

To: Mark Mayo

Re: Talkeetna State Airport Improvements

In the Talkeetna Comprehensive Plan it names several specific areas of bird habitat that will need special attention. One area is near the south end of the airstrip to the Talkeetna River, called locally Twister Creek Marsh. In the Visitor Impact study done in 1992 it suggests a boardwalk from the TKA Spur highway across the marsh to the then proposed visitor center. In its place the Talkeetna Alaska Lodge sits at that site so the need is still there.

What I & many others envision is a mini version of the Potter Marsh on that marsh. A small part of Airport land would be involved, plus University land, CIRI land & State / Borough properties. This might not happen immediately but your study needs to include that for the future. If a new access to the airport begins near the highway / RR crossing about mile 13.2 TKA Spur Rd. that would partly be in this sensitive marsh area. Plan accordingly please. Thanks

Call or fax for more info.

Ed Leland

163888

APR 12 '01

RECEIVED

B.M. Barnes
P.O. BOX 426
Talkeetna, Alaska 99676

April 16,2001

PRECONSTRUCTION
CENTRAL REGION

	ORIG	COPY
PreConstr. Engineer		
Aviation/Hwy		
Highways		
PD&E		
R&W		
TS&U		
OTHER:		
CENTRAL FILE		

action/comments.

APR 1 2 01
54660

Prelim. Design & Environmental Section	ORIG
PD&E Engr.	
Project Mgr. [illegible]	
Env. Coord. JR	
Env. Team Leader [illegible]	
Staff	
Hydrologist	
Project [illegible]	
Central File	

Laurie Mulcahy
Dept. of Transportation
and Public Facilities
Preliminary Design & Environmental
P.O. Box 196900
4111 Aviation Avenue
Anchorage, Alaska-99519-6900

To All Planning Departments concerned, (Talkeetna Airport improvements). PROJECT No. 54660

I currently live on lots 9 & 10 Block 2, in the Denali Subdivision. (please see Page # 1, blue ink). When I purchased my lots and built my home in 1982, the runway was an acceptable distance away,(see page #2). When you up-graded the Talkeetna runway in 1996, you cut most of the trees and brush down between my property and the runway. This made for a lot more noise, due to the removal of the sound buffer they created. I also get a lot of dust from the gravel road that was installed. I have managed to live with this new upgrade even though it is a nuisance at times.

In reviewing your new upgrade plans, I find you are planning to infringe on my property even more by building a transient apron RIGHT IN BACK OF MY HOUSE, a proposed paved auto parking just to the south of me, a GA apron, STILL IN BACK OF MY HOUSE, small lease lots with a Commercial apron and a new road even closer to the subdivision, all still in the near vicinity of my house. I see you have a Government Lease Reserve on the southwest end, past DOT&PF Maint. facility. This could bring in any and all kinds of larger aircraft. I see a place for ski-plane parking just past the Government area. Currently the skiplanes (skies only) use the Village Airstrip. I was wondering why you are putting in a parking area for skiplanes when the snow is removed from the runway and they are unable to use it.

I notice you have designated a "snowstorage area", to be in an area directly in back of my house. I belive this will cause runoff TO my property, even with culverts installed, which will thaw out AFTER most of the snow has melted. You have built the existing runway and road "at least" three feet higher above my property already. I believe any more building and raising of YOUR elevation will endanger my property to flooding and take a much longer time for my property to dry out in the springtime.

HELIPORT ALTERNATIVES #5 AND #6 (page #3)
I am against the "Heliport" being installed on the North end of the runway, ANYWHERE. We will be getting all the noise, dust and propwash from the helicopters in our subdivision. I

suggest you keep it in the same vicinity where it is currently located.

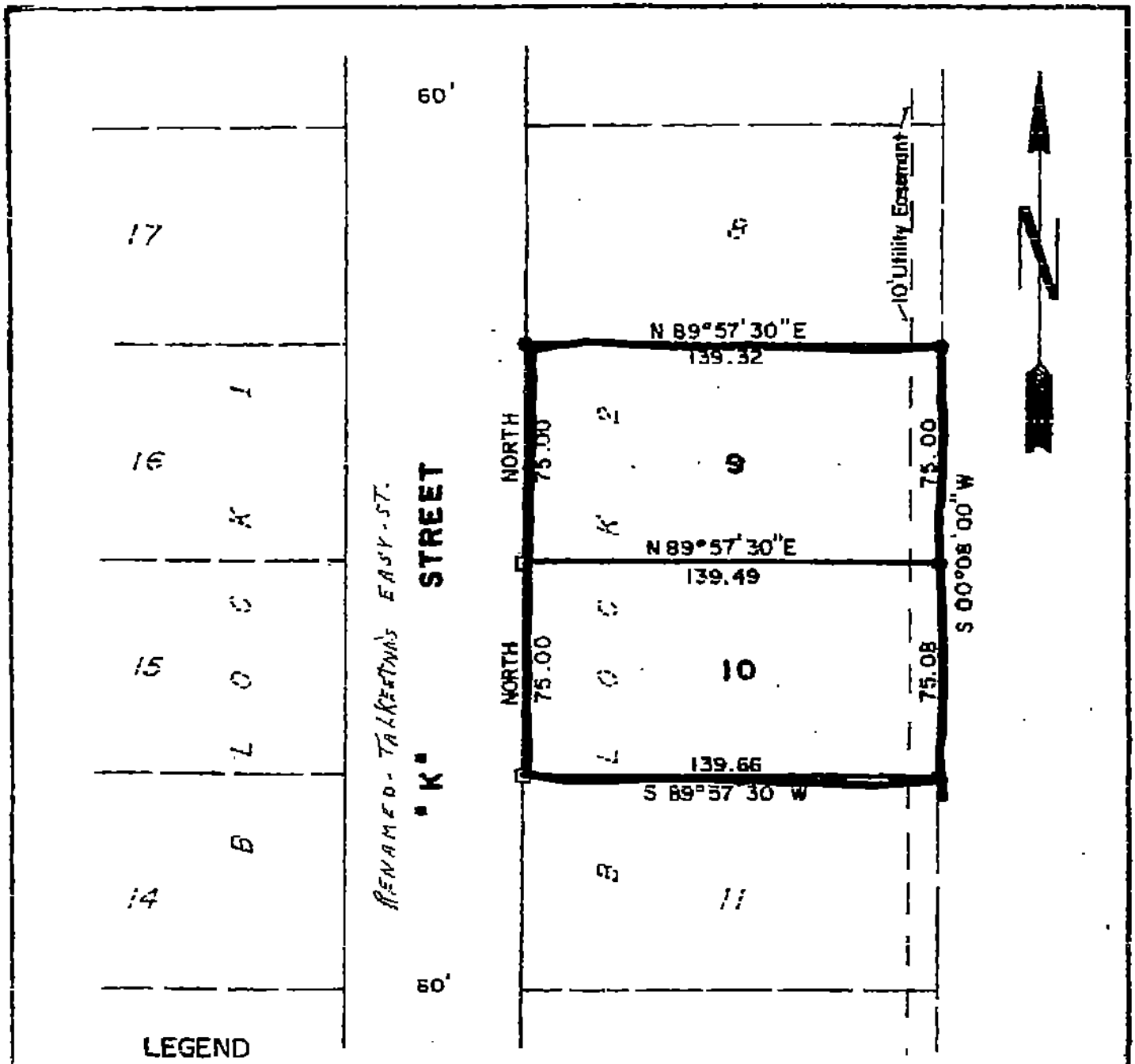
I encourage you NOT to develope the areas on the Northwest side of the runway, next to Denali Subdivision. I suggest You build on the EAST side of the existing runway, if you HAVE to expand. I realize there are some wetlands on the east side of the existing runway, but I also believe there is a solid gravel base under the existing overburden and you COULD expand on the east side instead of the west. It might bear looking into.

I am not against Airports, Airplanes, Helicopters or Developement. I realize they are a part of our ways of life in Talkeetna. I AM against developement RIGHT IN MY BACK YARD that will bring excessive noise and dust to all of the people currently living at the subdivision row right next to the runway. There are presently four retired families residing on this row. I am a retired old Senior, not in the best of health, and I feel I am entitled to the quiet enjoyment of my property.

If you feel that you HAVE to proceed with PROJECT 54660. Please feel free to make me an offer on my property as I feel there would be no other alternative, but to move.

Respectfully,

B.M (BABE) Barnes.



LEGEND

- ☐ Found hub & tack, set rebar
- ● 5/8" rebar, set

STATE OF ALASKA
LS 3795
Alec A. Stevens
NO. 3795-S
REGISTERED PROFESSIONAL LAND SURVEYOR

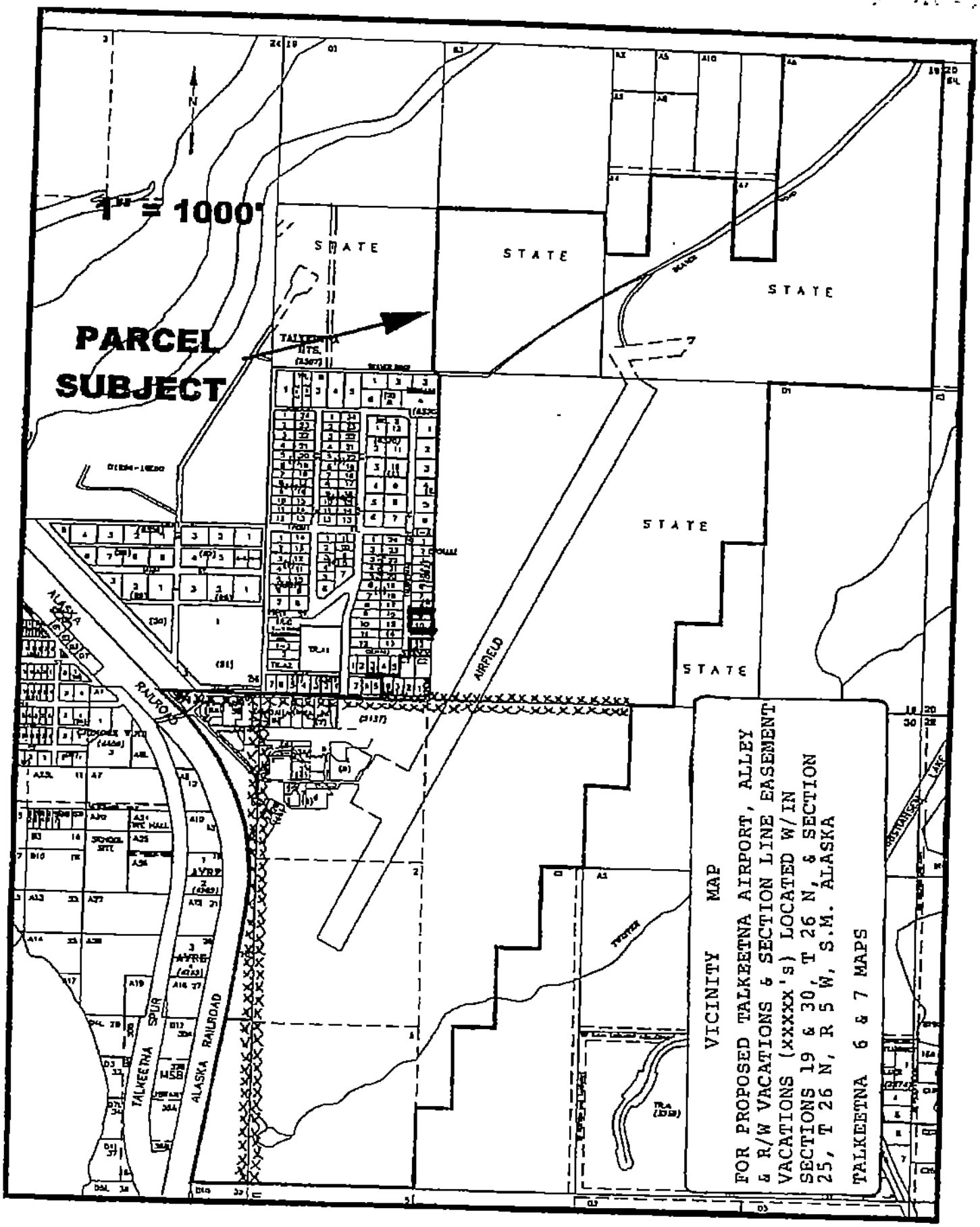
SURVEY OF

LOTS 9 & 10, BLK. 2
DENALI SUBDIVISION

TALKEETNA, ALASKA

SURVEYOR: Mac A. Stevens P.O. Box 74 Talkeetna, Alaska		CLIENT: Babe Barnes Talkeetna, Alaska	
DRAWN: NLT	DATE: 6/2/82	GRID	FILE No.
CHECKED: MAS	SCALE: 1" =	TALKEETNA(B-0	82-171

Page 11


1" = 1000'
PARCEL SUBJECT
STATE
STATE
STATE
STATE
STATE
AIRFIELD
ALASKA RAILROAD
TALKEETNA SPUR
ALASKA RAILROAD
VICINITY MAP
FOR PROPOSED TALKEETNA AIRPORT, ALLEY & R/W VACATIONS & SECTION LINE EASEMENT VACATIONS (xxxxx's) LOCATED W/IN SECTIONS 19 & 30, T 26 N, & SECTION 25, T 26 N, R 5 W, S.M. ALASKA
TALKEETNA 6 & 7 MAPS

Page # 2

Places in April 1993. During 1998, the community petitioned the Local Boundary Commission for incorporation as a home rule city.

Culture:
Talkeetna is popular for its recreational fishing, hunting, boating, flightseeing, skiing and dog mushing. Local businesses provides services to Mount McKinley climbers.

Economy:
As the take-off point for fishing and flightseeing trips, and a staging area for Mount McKinley climbing expeditions, Talkeetna provides air taxis, helicopters, outfitters, and related services. Numerous air taxis provide transport to Kahiltna Glacier Base Camp. All climbers must register for climbs of Mount McKinley and Mount Foraker (Talkeetna Ranger Station phone is 907-733-2231.) 12 residents hold commercial fishing permits.

Facilities:
The majority of residents have individual wells, septic tanks, and complete plumbing. A piped water and sewer system is maintained by the Talkeetna Water & Wastewater Utility. The high school operates its own water system. Over 30% of homes are used only seasonally.

Transportation:
Talkeetna is accessible by the Talkeetna Spur Road, off of the George Parks Highway. It has a State-owned 3,500' runway. There are three additional airstrips in the vicinity, including one owned by the U.S. Bureau of Land Management. A new Alaska Railroad depot was completed in August 1997.

Climate:
January temperatures average 4 to 23; July can vary from 47 to 68.

2000 Population and Housing Characteristics

The following Population and Housing data is from the 2000 U.S. Census.
Additional detail is available from the Census Bureau's American FactFinder.

Talkeetna is located in the **Matanuska-Susitna** Census Area.

Population by Race:

Population in 2000:	772
White:	679
Alaska Native or Amer. Indian:	29
Black:	0
Asian:	1
Hawaiian Native:	0
Other Race:	10
Two or More Races:	53

Percent Native: (Percent reporting Alaska Native alone or in combination with one or more races)	9.10%
Hispanic Origin (Any Race):	8
Not Hispanic (Any Race):	764

Population by Gender and Age:

Male:	410
Female:	362
Age 4 and under:	28
Age 45 - 54:	156
Age 5 - 9:	51
Age 10 - 14:	59
Age 15 - 19:	67
Age 20 - 24:	20
Age 25 - 34:	107
Age 35 - 44:	166
Age 45 - 54:	156
Age 55 - 59:	45
Age 60 - 64:	26
Age 65 - 74:	35
Age 75 - 84:	8
Age 85 and over:	4
Median Age:	39.0
Pop. Age 18 and over:	592
Pop. Age 21 and over:	562
Pop. Age 62 and over:	64

Census Population History:

1880:	0
1890:	0
1900:	0
1910:	0
1920:	70
1930:	89
1940:	136
1950:	106
1960:	76
1970:	182
1980:	264
1990:	250
2000:	772

16705I Heliport

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 09/13/2001
AFD EFF 09/06/2001
Form Approved OMB 2120-0015

* 1 ASSOC CITY: TALKEETNA	4 STATE: AK	LOC ID: TKA	FAA SITE NR: 50738.*A
* 2 AIRPORT NAME: TALKEETNA		5 COUNTY: MATA-SUS BOROUGH AK	
3 CBD TO AIRPORT (NM): 01 E	6 REGION/ADO: AAL/NONE	7 SECT AERO CHT: ANCHORAGE	

GENERAL

10 OWNERSHIP: PUBLIC
* 11 OWNER: ST OF AK DOTPF CENT REG
* 12 ADDRESS: POUCH 196900
ANCHORAGE, AK 99519-6900
* 13 PHONE NR: 907-268-1735
* 14 MANAGER: STEVE HANSON
* 15 ADDRESS: BOX 610
TALKEETNA, AK 99676
* 16 PHONE NR: 907-733-2278
* 17 ATTENDANCE SCHEDULE:

MONTHS	DAYS	HOURS
APR-NOV	MON-THU	0700-1700
DEC-MAR	MON-FRI	0600-1400

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 62-19-13.600N ESTIMATED
20 ARPT LONG: 150-05-37.300W
21 ARPT ELEV: 358 SURVEYED
22 ACREAGE: 624
* 23 RIGHT TRAFFIC: NO
* 24 NON-COMM LANDING: NO
25 NPIAS/FED AGREEMENTS: NGPY
26 FAR 139 INDEX:

SERVICES

* 70 FUEL: 100LL B B+
* 71 AIRFRAME RPRS: MAJOR
* 72 PWR PLANT RPRS: MAJOR
* 73 BOTTLE OXYGEN: NONE
* 74 BULK OXYGEN: NONE
75 TSNT STORAGE: TIE
76 OTHER SERVICES:
CARGO CHTR

FACILITIES

* 80 ARPT BCN: CG
* 81 ARPT LGT SKED: DUSK-DAWN
* 82 UNICOM: 123.000
* 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
85 CONTROL TWR: NONE
86 FSS: TALKEETNA
87 FSS ON ARPT: YES
88 FSS PHONE NR: 907-733-2277
89 TOLL FREE NR: 1-800-478-7150

BASED AIRCRAFT

90 SINGLE ENG:	50
91 MULTI ENG:	0
92 JET:	0
TOTAL:	50
93 HELICOPTERS:	3
94 GLIDERS:	0
95 MILITARY:	0
96 ULTRA-LIGHT:	0

OPERATIONS

100 AIR CARRIER:	0
101 COMMUTER:	0
102 AIR TAXI:	9,500
103 G A LOCAL:	4,000
104 G A ITNRNT:	16,000
105 MILITARY:	500
TOTAL:	30,000

OPERATIONS FOR
MOS ENDING

RUNWAY DATA

* 30 RUNWAY IDENT:	18/36	H1
* 31 LENGTH:	3,500	480
* 32 WIDTH:	75	85
* 33 SURF TYPE-COND:	ASPH-G	GRAVEL-G
* 34 SURF TREATMENT:		
35 GROSS WT: SW		
36 (IN THSDS) DW		
37 DTW		
38 DDTW		
LIGHTING/APCH AIDS		
* 40 EDGE INTENSITY:	MED	
* 42 RWY MARK TYPE-COND	BSC - G / BSC - G	- / -
* 43 VGSI	V4L / V4R	/
44 THR CROSSING HGT	27 / 27	/
45 VISUAL GLIDE ANGLE	3.00 / 3.00	/
* 46 CNTRLN-TDZ	- / -	- / -
* 47 RVR-RVV	- / -	- / -
* 48 REIL	/	/
* 49 APCH LIGHTS	/	/
OBSTRUCTION DATA		
50 FAR 77 CATEGORY	A(V) / A(V)	A(V) /
* 51 DISPLACED THR	/	/
* 52 CTLG OBSTN	TREES / TREES	/
* 53 OBSTN MARKED/LGTD	/	/
* 54 HGT ABOVE RWY END	42 / 60	/
* 55 DIST FROM RWY END	1,300 / 2,200	/
* 56 CNTRLN OFFSET	250L / 0R	/
57 OBSTN CLNC SLOPE	26:1 / 33:1	:1 / :1
58 CLOSE-IN OBSTN	N / N	N / N
DECLARED DISTANCES		
* 60 TAKE OFF RUN AVBL (TORA)	/	/
* 61 TAKE OFF DIST AVBL (TODA)	/	/
* 62 ACLT STOP DIST AVBL (ASDA)	/	/
* 63 LNDG DIST AVBL (LDA)	/	/

(*) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY *

110 REMARKS:

A 052 RWY H1 50 FT TREES SOUTH OF HELIPAD WITHIN 50 FT OF EDGE.
A 081 ACTVT MIRL & VASIS RY 18/36 - CTAF.
A 086 FOR A TOLL FREE CALL TO KENAI AFSS DIAL 1-800-WX-BRIEF.
A 110-01 HEL TFC USING FUEL/MAINT FAC REMAIN SOUTH OF FSS AND FLY DIRECT FROM ROTG BCN TO AVOID DAMAGE TO PARKED ACFT.
A 110-02 RY 18/36 CLOSED TO ACFT OVER 30000 LBS EXCEPT PPR; CTC AMGR 907-733-2278.
A 110-04 RWY COND NOT MONTRD RCMD VISUAL INSPTN PRIOR TO USING.
A 110-06 SEAPLANE OPERATIONS 3/4 MILE SE TALKEETNA ARPT. RECOMMEND ACFT OPS TO & FROM CHRISTENSEN LAKE REMAIN EAST OF LAKE.
A 110-07 65 FT BY 450 FT GRVL HELIPAD LOCATED 200 FT SW OF ROTG BCN. 40 FT TO 50 FT HIGH TREES LOCATED ALONG S SIDE OF HELIPAD.
A 110-08 FBO FUEL 100LL 24 HR NO CALL OUT FEE; PHONE OUTSIDE BLDG FOR USE WHEN FBO IS UNATNDD PHONE 907-733-2321.

111 INSPECTOR: (F)
112 LAST INSP: 09/08/2000
113 LAST INFO REQ:

FAA Form 5010-1 (5-91) SUPERSEDES PREVIOUS

U.S. DEPARTMENT OF TRANSPORTATIO
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECOI

PRINT DATE: 09/13/2001
AFD EFF 09/06/2001
Form Approved OMB 2120-0015

> 1 ASSOC CITY: TALKEETNA
> 2 AIRPORT NAME: TALKEETNA
3 CBD TO AIRPORT (NM): 01 E
4 STATE: AK
6 REGION/ADO: AAL
LOC ID: TKA
5 COUNTY: MATA-SUS BOROUGH
7 SECT AERO CHT: ANCHORAGE
FAA SITE NR: 50738.*A

GENERAL

10 OWNERSHIP:
> 11 OWNER:
> 12 ADDRESS:

> 13 PHONE NR:
> 14 MANAGER:
> 15 ADDRESS:

> 16 PHONE NR:
> 17 ATTENDANCE SCHEDULE:
MONTHS DAYS HOURS

18 AIRPORT USE:
19 ARPT LAT:
20 ARPT LONG:
21 ARPT ELEV:
22 ACREAGE:
> 23 RIGHT TRAFFIC:
> 24 NON-COMM LANDING:
25 NPIAS/FED AGREEMENTS:
26 FAR 139 INDEX:

RUNWAY DATA

>30 RUNWAY IDENT:
>31 LENGTH:
>32 WIDTH:
>33 SURF TYPE-COND:
>34 SURF
35 GROSS WT: SW
36 (IN THSDS) DW
37 DTW
38 DDTW

LIGHTING/APCH AIDS

>40 EDGE INTENSITY:
>42 RWY MARK TYPE-COND
>43 VGSI
44 THR CROSSING HGT
45 VISUAL GLIDE ANGLE
>46 CNTRLN-TDZ
> 47 RVR-RVV
> 48 REIL
> 49 APCH LIGHTS

OBSTRUCTION DATA

50 FAR 77 CATEGORY
> 51 DISPLACED THR
> 52 CTLG OBSTN
> 53 OBSTN MARKED/LGTD
> 54 HGT ABOVE RWY END
> 55 DIST FROM RWY END
> 56 CNTRLN OFFSET
57 OBSTN CLNC SLOPE
58 CLOSE-IN OBSTN

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL
> 61 TAKE OFF DIST AVBL (TODA)
> 62 ACLT STOP DIST AVBL (ASDA)
> 63 LNDG DIST AVBL (LDA)

SERVICES

> 70 FUEL:
> 71 AIRFRAME RPRS:
> 72 PWR PLANT RPRS:
> 73 BOTTLE OXYGEN:
> 74 BULK OXYGEN:
75 TSNT STORAGE:
76 OTHER SERVICES:

FACILITIES

>80 ARPT BCN:
>81 ARPT LGT SKED:
>82 UNICOM:
>83 WIND INDICATOR:
84 SEGMENTED CIRCLE:
85 CONTROL TWR:
86 FSS:
87 FSS ON ARPT:
88 FSS PHONE NR:
89 TOLL FREE NR:

BASED AIRCRAFT

90 SINGLE ENG:
91 MULTI ENG:
92 JET:

TOTAL:

93 HELICOPTERS:
94 GLIDERS:
95 MILITARY:
96 ULTRA-LIGHT:

OPERATIONS

100 AIR CARRIER:
101 COMMUTER:
102 AIR TAXI:
103 G A LOCAL:
104 G A ITNRNT:
105 MILITARY:

TOTAL:

(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

110 REMARKS:
A 110-09 FOR FUEL CALL 907-733-2599 OR NIGHT 907-354-2599. ALSO AVBL AT 907-733-2321.

111 INSPECTOR: (F)
FAA Form 5010-1 (5-91) SUPERSEDES PREVIOUS

112 LAST INSP: 09/08/2000

113 LAST INFO REQ:

167451
Heliport

US Code as of: 01/2/00

Sec. 47101. Policies

- (a) General. - It is the policy of the United States -
  - (1) that the safe operation of the airport and airway system is the highest aviation priority;
  - (2) that aviation facilities be constructed and operated to minimize current and projected noise impact on nearby communities;
  - (3) to give special emphasis to developing reliever airports;
  - (4) that appropriate provisions should be made to make the development and enhancement of cargo hub airports easier;
  - (5) to encourage the development of transportation systems that use various modes of transportation in a way that will serve the States and local communities efficiently and effectively;
  - (6) that airport development projects under this subchapter provide for the protection and enhancement of natural resources and the quality of the environment of the United States;
  - (7) that airport construction and improvement projects that increase the capacity of facilities to accommodate passenger and cargo traffic be undertaken to the maximum feasible extent so that safety and efficiency increase and delays decrease;
  - (8) to ensure that nonaviation usage of the navigable airspace be accommodated but not allowed to decrease the safety and capacity of the airspace and airport system;
  - (9) that artificial restrictions on airport capacity -
    - (A) are not in the public interest;
    - (B) should be imposed to alleviate air traffic delays only after other reasonably available and less burdensome alternatives have been tried; and
      (C) should not discriminate unjustly between categories and classes of aircraft;
  - (10) that special emphasis should be placed on converting appropriate former military air bases to civil use and identifying and improving additional joint-use facilities;
  - (11) that the airport improvement program should be administered to encourage projects that employ innovative technology, concepts, and approaches that will promote safety, capacity, and efficiency improvements in the construction of airports and in the air transportation system (including the development and use of innovative concrete and other materials in the construction of airport facilities to minimize initial laydown costs, minimize time out of service, and maximize lifecycle durability) and to encourage and solicit innovative technology proposals and activities in the expenditure of funding pursuant to this subchapter;
  - (12) that airport fees, rates, and charges must be reasonable and may only be used for purposes not prohibited by this

RECEIVED

OCT 03 '01

RECONSTRUCTION
CENTRAL REGION

	ORIG	COPY
Const. Engineer		
Aviation/Hwy		
Highways		
M&E		
P/W		
R&U		
OTHER:		
CENTRAL FILE		

action/comments:

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

STATEWIDE DESIGN & ENGINEERING SERVICES
PRELIMINARY DESIGN AND ENVIRONMENTAL

4111 AVIATION AVENUE
P.O. BOX 196900
ANCHORAGE, ALASKA 99519-6900
(FAX) 243-6927 - TDD 269-0473
(907) 269-0528 or (907) 269-0542

October 8, 2001
Talkeetna Airport Improvements
Project No. 54660

B.M. Barnes
Post Office Box 426
Talkeetna, Alaska 99676

Dear Ms. Barnes:

I wanted to take this opportunity to personally notify you that we are preparing to shift into the Design Phase for the Talkeetna Airport Improvements project and have scheduled a public informational meeting in Talkeetna for Wednesday, October 17th, between 4:00 and 7:00 p.m. at the Talkeetna Elementary School.

Your previous letter stated that as an adjacent Denali Subdivision homeowner, actions at the airport are affecting your property. You had several immediate concerns regarding proposed expansion of the aprons, parking areas, lease lots; creating additional snow storage area, with potential runoff issues; and a new heliport location siting. Existing airport generated noise as well as dust from the gravel access road built during the previous airport improvements project were also identified as concerns.

The Design Phase includes general airport improvements, and additional noise analysis and hydrologic/hydraulic studies to further consider floodplain and other mitigation measures. A separate heliport location study will be conducted to determine a final site selection. We will schedule formal public scoping reviews and meetings as the studies and designs are generated.

Thank you for contacting this office with your concerns. Your letter has been distributed to our Planning Section and was forwarded to Don Baxter, Project Manager, 269-0610. I will be the primary contact for the project's environmental documentation and can be reached at 269-0536. We hope to see you at the October 17th meeting.

Sincerely,

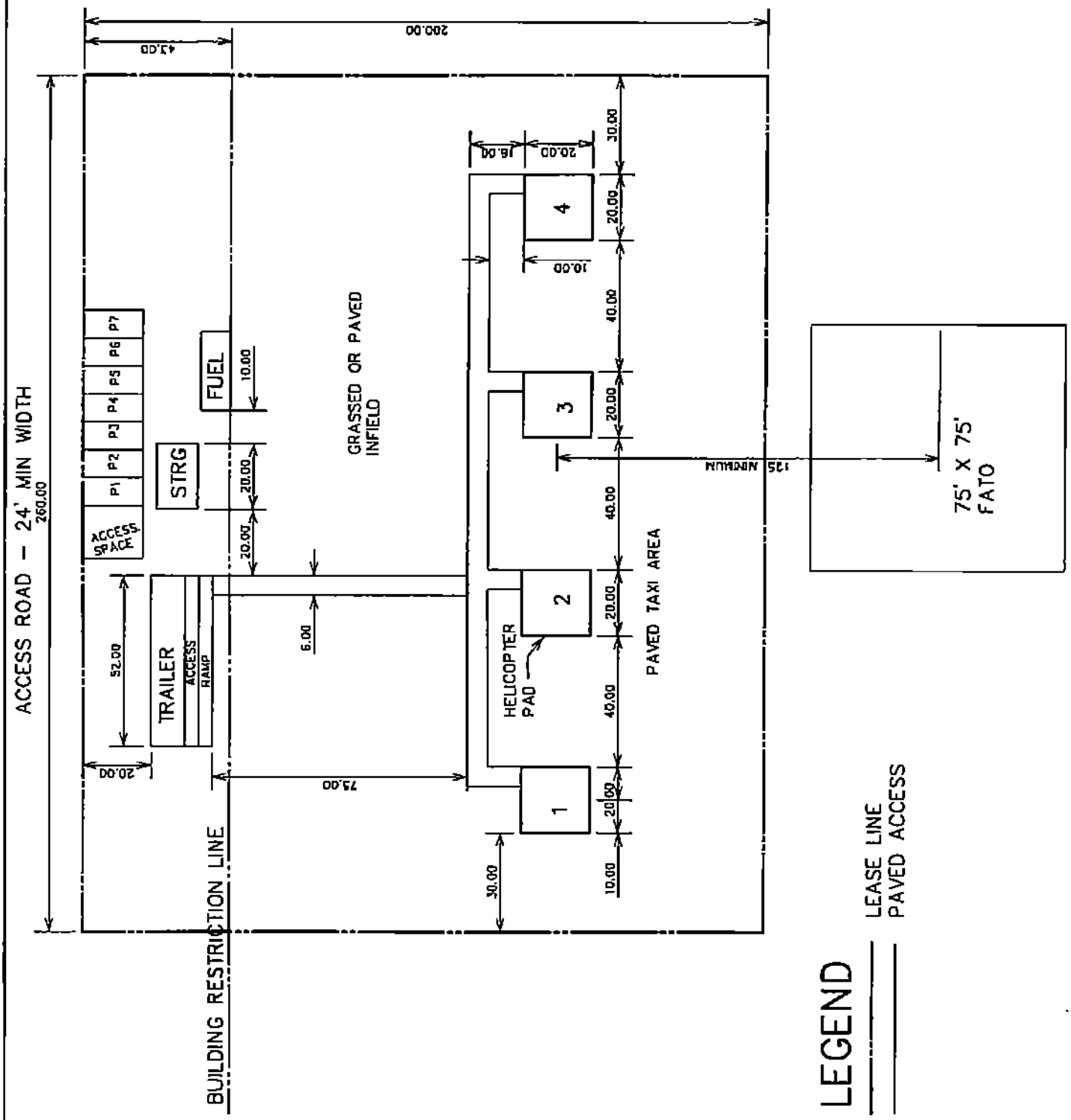
Laurie Mulcahy

Laurie Mulcahy

cc: Don Baxter, P.E., Project Manager

10/16/01
Public Comments

NOTE:
THIS IS A DRAWING THAT WARREN LOWRY/ERA developed.
-STEVE



SCALE	DATE			DRAWING NO.	SHEET
1' = 40'	16 OCTOBER 2001	ERA AIPORT OPS DETAIL SITE PLAN	CCE	CCE-1106-07-07-00	1 OF 1

Public Comments
167651

Talkeetna Airport Improvements, Phase II
Design Public Meeting
17-Oct-2001

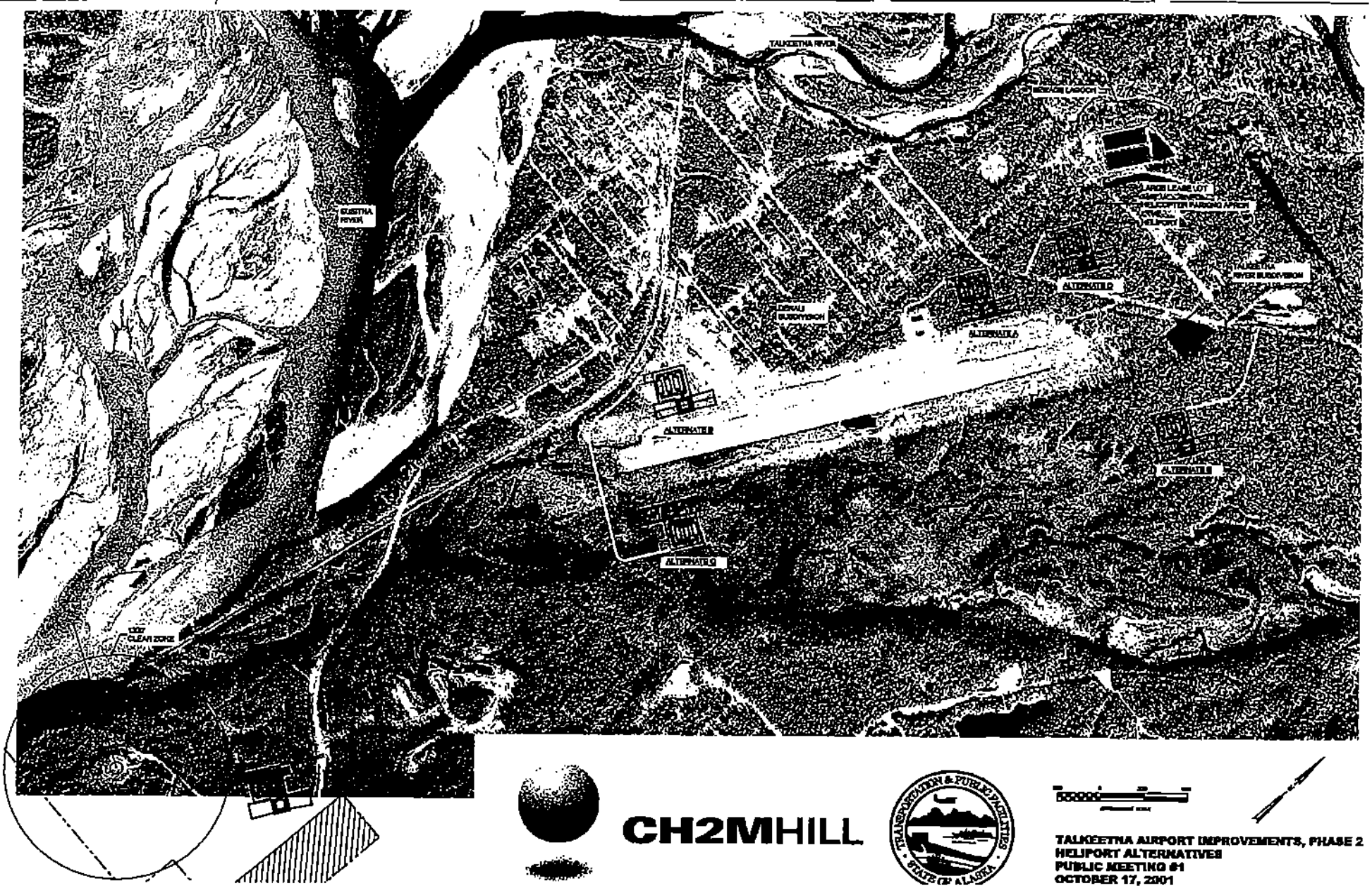
Sign In

Signature	Name	Address	City	State	Zip	email	Phone	Fax
[illegible]		P.O. 190430	Anch	AK	99519	craddenali@mtaonline.net	265-8358	8399
Ruth Wood		PO Box 766	Talkeetna	AK	99676	[struck out]	733-6874	
[illegible]	R.G. Denny	P.O. Box 290	Talkeetna	Alaska	99676		733-2340	same
[illegible]	Stephen Stoll	Box 870767	Wasilla	AK	99687	aztech@alaska.net	373-3447	907-373-7828
Dave Jemme		Box 525		AK	99676			
Roberta Sheldon	ROBERTA SHELDON	Box 292	Talkeetna		99676		733-2414	same — Flood Control Bd.
Billy Fitz Gerald [illegible]	Billy Fitz Gerald	Box 93	Talkeetna	AK	99676	info@denalitrekking.com	-2566	
Sandra Garley		350 E. Dahlia	Palmer	AK	99645	sgarley@msb.co.mat-su.ak.us	745-9850	
Kathleen E. Fleming	Kathleen E. Fleming	POB 248	TKA				357-3888	
Annie Duquette	ANNIE DUQUETTE	PO BOX 234	TKA	KA	99676		733-5501	
Linda Ramsey	Linda Ramsey	P.O. Box 319	TKA		99676		733-1419	
Mark Forrester	Mark Forrester	BOX 1026	Talkeetna	AK	99676		733-6169	
LeeAnn Wetzel	LeeAnn Wetzel	PO Box 544	Talkeetna		99676		733-1965	
Susan Kellard	Susan Kellard	" 101	"		"		733-2710	/ 2720
James Kellard	JAMES Kellard	"	"	"			"	" "
ERA Helicopters	Warren E. Lowry	6160 Carl Brady Drive	Anchorage	AK	99502		907 248 4422	
ERA Helicopters	Tim Cudney	6160 Carl Brady Drive	Anchorage	AK	99502		(907) 248 4422	

Talkeetna Airport Improvements, Phase II
Design Public Meeting
17-Oct-2001

Sign In

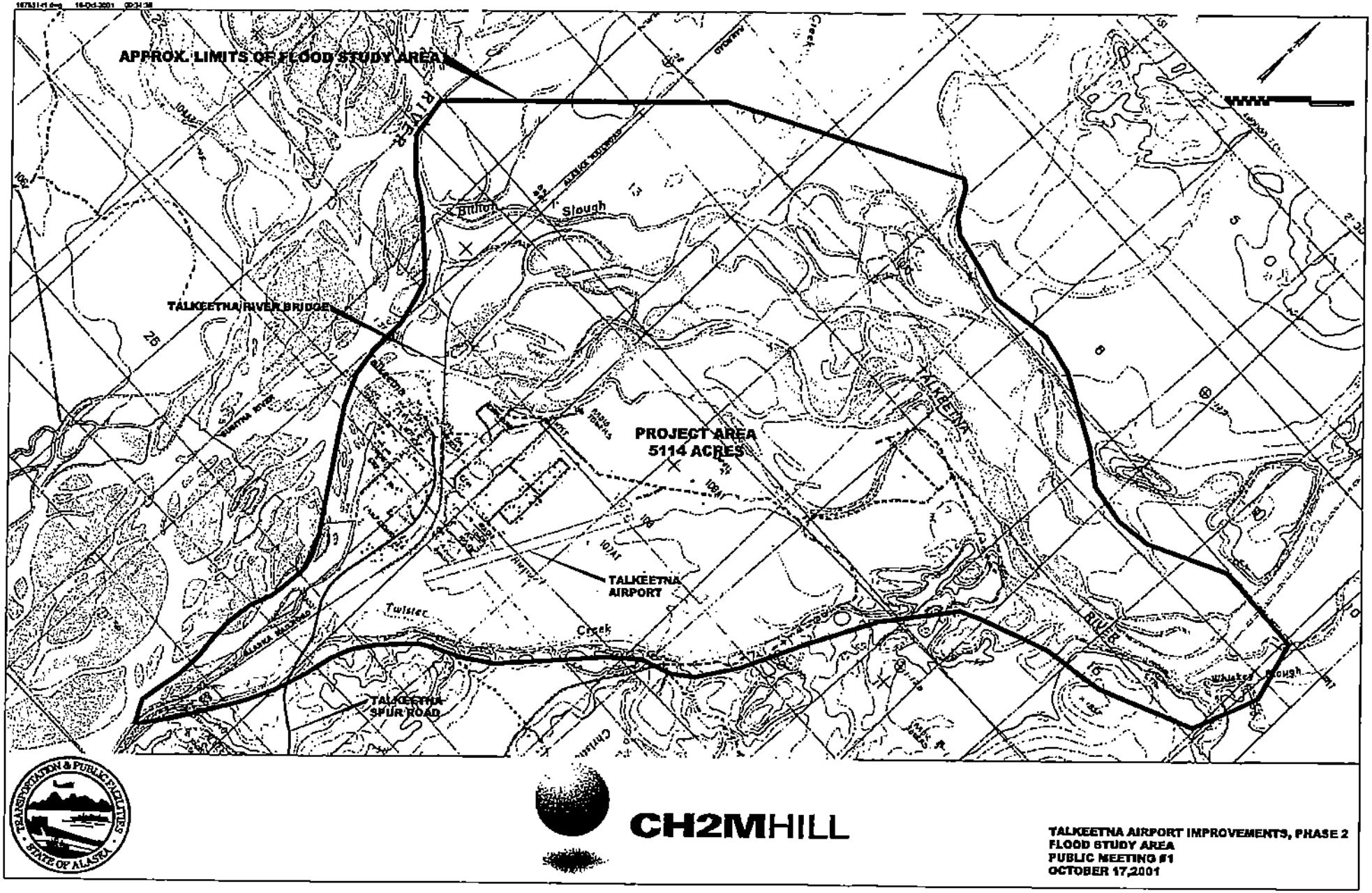
Signature	Name	Address	City	State	Zip	email	Phone	Fax
	Steve Cinelli	301 W No. Lights #601	Anchorage	AK	99502	scinelli@ch2m.com	(907) 276-6F33 x235	
	Warren Lowry	PO 110638	Anchorage	AK	99511	warrenlowry@msn.com	9072668467	
	ERIC DENKEWALTER	BOX 305	TKA	AK	99676	TALKAERO@ALASKA.NET	733 2495	
	JEFFREY C DAVIS	333 Raspberry Rd	Anch	AK	99518	Jeff.Davis@fhwa.dot.gov	267-2404	
	Robert Gerlach	Box 23 TKA		AK	99676		733 2C12	
	Heather Bovut	MSB - Planning	Palmer	AK		HBovut@msb.co.mat-su.ak.us	745-	
	TERRY MANGIONE	PO Box 11	TALKEETNA	AK	99676		907-733-2289	
	HARLAN LECAKE	COE					753-2610	
	BILL POST	PO BOX 871	Talkeetna	AK	99676		733-2448	
	GERALD L SUNGA	PO Box 922	Talkeetna	AK	99676		733-8555	
	Don Bagley	ADOT/PF						
	JOHN LOVETT	FAA AIRPORTS						
	Sandra White	PO Box 130	TKA	AK	99676	info@talkeetnaair.com	733-2218	
	DAVE COOLIDGE	301 W. N. LIGHTS #601	ANCH.	AK	99503	dcoolidge@ch2m.com	276-6033x210, 257-2002	
	Ron Stroman / ODOT HPF Leasing	Anchorage AK						
	Bob Norton / DOT - PF Leasing	Anchorage AK						
	Stelle Hanson / ODOT HPF TKA Maintenance	TKA, AK						
	Tim Aldrich / URS CORP	FAIRBANKS, AK						
	Robert Gerlach, TKA AK							



CH2MHILL

TRANSPORTATION & PUBLIC FACILITIES
STATE OF ALASKA

TALKEETNA AIRPORT IMPROVEMENTS, PHASE 2
HELIPORT ALTERNATIVES
PUBLIC MEETING #1
OCTOBER 17, 2001


APPROX. LIMITS OF FLOOD STUDY AREA
TALKEETNA RIVER BRIDGE
PROJECT AREA
5114 ACRES
TALKEETNA
AIRPORT
TALKEETNA
SPUR ROAD
Twister
Creek
Slough
ALASKA RAILROAD
TALKEETNA RIVER
SUSITNA RIVER
TRANSPORTATION & PUBLIC FACILITIES
STATE OF ALASKA
CH2MHILL
TALKEETNA AIRPORT IMPROVEMENTS, PHASE 2
FLOOD STUDY AREA
PUBLIC MEETING #1
OCTOBER 17,2001

TALKEETNA AIRPORT IMPROVEMENTS PHASE II

Public Meeting

COMMENT SHEET

October 17, 2001

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Dave Coolidge, P.E.
Project Manager, CH2M HILL
301 W. Northern Lights Blvd. Suite 601
Anchorage, Alaska 99503
Voice (907)276-6833, Fax (907) 257-2003
e-mail: dcoolidg@ch2m.com

Don Baxter, P.E.,
Project Manager DOT&PF
P.O. Box 196900
Anchorage, AK 99519
Voice (907) 269-0610, Fax (907) 269-0620
e-mail: don_baxter@dot.state.ak.us

NAME: LeeAnn Wetzel - McKinley Air Service.

ADDRESS/ZIP PO Box 544

TELEPHONE: 907 733-1765

E-MAIL mckair@alaska.net

Comments/Suggestions Concerning the Phase II Airport Improvements:

We have been waiting for new lease lots since 1995. The State of Alaska had "promised" new lots since 1997. Needless to say we are still waiting for the "promises" to come about. My company ended up in a strange bidding situation - (paying 8X the normal rate of leased lots) + only getting use of this lot for 3 years + only 5 months of the year. I am extreme disappointed with the States progress of lease lots + it has drastically affected my business. To say these lots will be done in a timely matter to accomodate my business is very hard to have faith in.

These new proposed lots ~~seem~~ look very usable I hope you do your best to make it happen.

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Project Manager DOT&PF
P.O. Box 196900
Anchorage, AK 99519
Voice (907) 269-0610, Fax (907) 269-0620
e-mail: don_baxter@dot.state.ak.us

NAME: Brenda Ramsey (Bl. #1, Lot 16; 17 Denali Subdv.)

ADDRESS/ZIP P.O. Box 319, Talkeetna, AK 99676

TELEPHONE: 733-1419

E-MAIL

Comments/Suggestions Concerning the Phase II Airport Improvements:

As a resident of Denali Subdivision (Easy St. near corner of Denali) I have 2 problems related to increased Traffic of the Talkeetna Airport:

(1) Increased noise during summer months interferes increasingly with sleep and daily living activities, such as being unable to talk on the telephone.

(2) Increased air pollution which was especially noticeable this past summer when a jet was based and parked near Talkeetna Air Taxi.

With the proposed Phase 2 expansion of transient parking and heliport movement, my home may become uninhabitable from a noise and air pollution standpoint.

TALKEETNA AIRPORT IMPROVEMENTS PHASE II

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Anchorage, AK 99519
Voice (907) 269-0610, Fax (907) 269-0620
e-mail: don_baxter@dot.state.ak.us

NAME: TERRY MANGIONE

ADDRESS/ZIP PO BOX 11

TELEPHONE: 733-2287 / 3599

E-MAIL

Comments/Suggestions Concerning the Phase II Airport Improvements:

Heli port to north end of Airport Grounds On east side. extend access Road on east side of RR to TKA spur south of Cravens Crossing to provide Better access to Airport. Provide Pedestrian access To All lease Lots not only Those North of The Apron.

Addition of access Road will Enhance SAFTY. of Traffic Flow, and ~~allow~~ Allow Better Emg. services access To Air Port.

TALKEETNA AIRPORT IMPROVEMENTS PHASE II

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P.O. Box 196900
Anchorage, AK 99519
Voice (907) 269-0610, Fax (907) 269-0620
e-mail: don_baxter@dot.state.ak.us

NAME: Joe Page

ADDRESS/ZIP PAB 158

TELEPHONE: 733-1060

E-MAIL Jhpage52@hotmail.com

Comments/Suggestions Concerning the Phase II Airport Improvements:

It's too noisy around here already. Everytime a plane flies over the loons sound their alarm call. I can't imagine what sounds the helicopters might generate. There must be a better way than to continue expansion.

DOES ANYONE READ THESE? File

TALKEETNA AIRPORT IMPROVEMENTS PHASE II

Public Meeting

COMMENT SHEET

October 17, 2001

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Anchorage, AK 99519
Voice (907) 269-0610, Fax (907) 269-0620
e-mail: don_baxter@dot.state.ak.us

NAME: ROBERTA SHELDON

ADDRESS/ZIP BOX 292, TALKEETNA, ALASKA 99676

TELEPHONE: 907-733-2414

E-MAIL

Comments/Suggestions Concerning the Phase II Airport Improvements:

THE HELICOPTER ISSUE HAS BECOME SO CONTROVERSIAL HERE THAT IT'S TIME TO MOVE HELICOPTER ACTIVITY, AND ITS ACCOMPANYING NOISE, AWAY FROM THE TALKEETNA AIRPORT.

AN IDEAL SPOT FOR RELOCATION AT THE COVERED AND UN-USED MAT-SU BOROUGH LANDFILL, A LITTLE OVER A MILE OUT OF TOWN. THIS HAS CONVENIENT HIGHWAY ACCESS AND IS CLOSE TO TOWN. IT'S LOCATED ON THE EAST SIDE OF THE TALKEETNA SPUR ROAD AT ITS JUNCTURE WITH COMSAT ROAD. PLEASE LOOK INTO IT. HELICOPTER OPERATIONS CAN USE A SHUTTLE BUS TO GET BACK & FORTH.

IT'S TIME FOR HELICOPTERS TO RELOCATE!

167122
Public Comments

TALKEETNA AIRPORT IMPROVEMENTS PHASE II
Public Meeting
COMMENT SHEET
October 17, 2001

NAME: Warren Lowry (Era Aviation, Inc.)
ADDRESS/ZIP: 6160 Carl Brady Dr. Anchorage, AK 99502
TELEPHONE: 907 248-4422 ex 467 fax 266-8377
E-MAIL: warrenlowry@msn.com

Comments/Suggestions Concerning the Phase II Airport Improvements:

- I apologize for the lateness of this comment. I don't remember the letter designations for the current heliport alternatives. Era would like to be as close to Talkeetna as possible, for convenience and customer visibility. The current helicopter parking area is the best for those purposes. Our first choice for a lease lot would be where the helicopters are now parked or south of that area west of runway. The second area on your plan that is not particularly sensible for us, but is one of the alternatives, is the southeast side of the runway, only if it is within walking distance of facilities.

- Era Aviation, Inc. intends to lease an approximate 200'x 260' lot for 4 Astar type helicopters when the Talkeetna Airport lease spaces are available. That size lot includes vehicle and aircraft parking, a building and fuel storage. We plan on using the permit area we have been using at the airport until the new lease lots are available.

- Helicopters should be given equal consideration with airplanes for use of the public airport. The draft plans appear to give the airplane operators the choice lease lot and commercial ramp locations with little thought for the needs of helicopter operators. Maybe you can start with a fresh draft that treats both types of aircraft as equals. Both types of aircraft have the same needs from the airport. Both types of aircraft do not have to be separated by more than a few hundred feet at most. You do not have to have a heliport on an airport, maybe a separate or shared landing/takeoff area and parking. Large lease lots are planned where the helicopters now park in the preferred alternative. I assume they are for airplanes only. Why can't helicopters continue to use that area? There is quite a bit of space in that location. If that area were properly planned there would probably be room for helicopter leases. Maybe the large helicopters should be in a separate location across the runway. The large helicopters are all transient. Why should the helicopter leaseholders be inconvenienced and potential airplane leaseholders given the choice lease lot locations? Helicopter sound from that end of the airport by small helicopters and maybe large helicopters could be quieter than certain airplanes at takeoff power. Our operations at full speed during the summer would probably not exceed 4 takeoffs and landings an hour during the day, compared to many more airplane takeoffs. Large helicopters use the airport very little compared to other aircraft. All helicopters should not be colored by few operations by large helicopters.

- If there are lease lots or transient helicopter parking on the east side of the runway, then there should be a pedestrian walkway along with the road so people without a vehicle can walk to the facilities (Flight Service Station, restrooms, food and town).

- Large helicopters (12,500+lbs) should be separated from all other smaller aircraft if the large helicopters have to hover to parking.

- The noise study should include all aircraft.

- We would be happy to meet with you at any time.

Talkeetna Airport Improvements, Phase II

Design Public Meeting Wednesday October 17, 2001, 4-7 PM
Talkeetna Elementary School

ATTENDEES:

CH2M HILL	DOT&PF
Linda Cyra-Korsgaard	Don Baxter, Laurie Mulcahy
Dave Coolidge	Bob Norton, Ron Stroman
Steve Cinelli	Steve Hanson
Farshard Farhang	**FAA:** John Lovett
26 public members signed-in	**COE:** Harlan Legare

General Comment Summary

- Move the airport to another location altogether.
- Put a limit on the number of flights.
- When will construction take place? (2003).
- Likes Alt B for transient parking lot.
- Alt C – heliport, a concern was noted with pedestrians crossing the runway.
- Move just the heliport away from Talkeetna.
- Person would like air quality researched because last summer, jet fumes were evident/bothersome from 5 lots away down Denali Street
- Wanted to know if the State has to answer every question that is submitted in writing. A comment was made regarding the EA to move the airport out of Talkeetna. Establish flight patterns for planes and helicopters to reduce noise over town.
- The military helicopters create a lot of dust.
- Discuss flight paths with the military.
- Likes Alt F (VOR site), but is concerned with the flight path.
- Heard one comment that the airport has created the flooding problem.
- A comment that there is a sight distance problem for folks leaving the K2 airport area and turning left, the ARRC tracks are high and small cars cannot see cars traveling east toward the airport.
- Various individuals stated that Alternatives D and E are impractical due to the separation between the existing apron area and the proposed heliports. Alternative A is impractical due to it's proximity to residential areas. Alternative B is impractical due to it's conflicts with the proposed commercial apron development.
- A secondary access road will provide a bypass away from the town center for airport destination traffic, as well as an alternate access for boat traffic destined to the river. Borough regulation requires two points of ingress/egress and currently the airport is not in compliance.
- The need for *fencing* for perimeter security and to promote safety in air operations areas.
    1. Numerous ski trails/dog sled trails that have evolved on the airport property as well as the VOR site are in a trespass situation. These trails are used by local schools and area residents, and access to certain trails cross active air operations areas, potentially compromising security and airport safety.
    2. Moose and loose dogs are also concerns at the airport, and fencing should not preclude snow disposal opportunities.

3. Fence locations are to be determined by tenants in consultation with airport leasing.

- Some residents expressed growing concerns on overuse of the airport, and wanted to know when no additional growth was acceptable and how limitations could be placed on the airport. This generated discussions that limitations could not be placed on interstate commerce, but that the National Environmental Policy Act (NEPA) process could result in such actions as the No Build or other more restricted build alternatives.
- There is a proposed bird sanctuary northeast of the airport at intersection of Comsat Road and Beaver Road.
- A ski runway parallel to the paved runway would facilitate closing down the community airstrip and reduce noise within the community.

Heliport Sites

General discussion about special design opportunities for Heliport Alt C.

- . Reconfigure into a linear design along southeast upland parallel to the runway embankment (rather than the "cookie-stamp" design as shown), thus shifting away from Twister Creek and contiguous wetlands.
- To construct the currently depicted Alt C facility requires several permits, including Alaska Department of Fish and Game (ADF&G) Title 16 and U.S. Army Corps of Engineers (Corps) Section 404.
- The reconfigured design must be self-mitigating, especially with Section 401 water quality concerns, with a recommended 100-foot setback from wetlands/waterbodies for fueling and/or other staging activities (a general ADOT&PF Best Management Practice requirement).
- Design concepts to consider include grading towards runway into grassy swales/ditches, installing curb and gutter, and relocating the access road.
- Need to further consider wetland boundaries to better site the facility so that it can be determined viable and feasible by resource agencies since there are other upland alternatives.
- Local pilot concern is that developing Alt C may preclude a future float plane basin in the vicinity.
- General public comment that Alt C may be within active floodplain, and several concerns regarding the 3 alternatives on the northern end of RW 18 (Alts A, D, E) because of potential noise impacts on adjacent residential subdivisions.
- ERA Helicopters prefer either Alts B or C, with sizable lease lots.
- They anticipate operating 3 helicopters for area scenic/touring ventures, primarily in connection with the Princess Hotel.
- The ERA representatives consider that any proposed heliport situated within central proximity of airport facilities as beneficial and not acceptable to be located in the northeast corner (Alt E) or near the VOR (Alt F).
- A separation distance of approximately 250 feet between transient helicopters and Chinooks/other large helicopters is desired because of rotor wash.
- Need to recognize that this business will generate additional vehicular traffic flow/transportation patterns onto the airport (to and from lease lots) to accommodate the tourists chartering their helicopters.
- ADF&G does not support Alt C and it's access road, and prefers upland alternatives.
- Alt C shown to impact Twister Creek and contiguous wetlands. It was explained that we will consider modifications to the "cookie-stamp" design to determine the alt's feasibility.

- The ADF&G representative indicated that they may pursue an Environmental Impact Statement should the Department select a preferred alternative in the southeast Twister Creek wetlands; it has the greatest impact on fisheries of all alternatives considered and the access road would act as a floodplain barrier.
- The representative did not favor the proposed airport secondary access road of the Master Plan EA, but also recognized that it is not included in this near-term phase of project development and stated that ADF&G will deal with that design element when it surfaces in the long term development.
- Gerry Sousa has a B&B near Alts A and D. He opposes both sites and supports Alt F. He volunteered to have noise measurements taken at his property.
- The Community Council representative, Billy Fitzgerald, indicated that the community supports Alt F. This is because currently existing noise levels generated by aircraft approaching and departing the airport are unacceptable and there is associated low level flying over the town.
- The community wants future aviation development to the east side of the airport, away from town.
- The representative further indicated that the community does not support any heliport alternative on airport property and expressed concerns that a certain airport business is not speaking for all of the local community.
- It was stated that EMS emergency services could land at the runway even if the heliport was sited off airport property. Emergencies usually go to Columbia Hospital and not generally the Sunshine Clinic located at Mile 4 Talkeetna Spur Road.
- With regard to Alt C, heliport businesses would need to provide transportation for clients and require vehicles to access the site; it would not be a walk-in situation. This is also the case for Alt F, which is closer to the hotel, the primary generator of the majority of customers. It was not envisioned that many clients/tourists would be attracted from town.
- Alt C would have approaches/departures over town in a fashion similar to current conditions.
- The Community Council representative also suggested the "old dump site" across road from Alt F as an alternate heliport site because Alt F impacts ski trails (as does Alt C as presently depicted). These trails are on ADOT&PF airport and FAA VOR properties (refer to the fencing discussion contained in the subsequent Others Issues section of these meeting minutes). It was recommended that the trails are not compatible with airport operations and should be relocated. (Concerns with regards to issues of potential contamination/other ADEC concerns at the above-suggested alternate heliport site; the suggested alternate appears to be adjacent to the hotel - also see subsequent ski trail discussion and safety issues.)

Noise Issues

- Aircraft noise originates from three locations: Talkeetna Airport, Christiansen Lake, and the village strip. Flight pattern conflicts exist between the runway and Christiansen Lake.
- An overall complaint expressed by many is that there are currently unacceptable noise levels generated by aircraft approaching and departing the airport. Low level flying aircraft turn right after departure across town in conflict with left hand turn pattern for Runway 18. There is also a mid approach across town, which generates core noise at the mid point of the runway. Pilots will use full propeller with maximum RPM's versus "throttle back" during take off.

- It was acknowledged that noise levels for Cessna 185's and Aero Commanders are high, and it was noted that "perceived" noise from the Chinooks is actually caused from feeling the pressure of rotor wing operations; this is especially annoying to local residents when aircraft land to the south. Regardless, residents indicate that airport noise induced disruptions within the community are increasing. Appropriate noise monitoring sites were identified within the community, and modeling and analysis techniques were described.
- It appears that changes and imposed limitations in flight patterns could mitigate existing noise impacts, especially when approaching and departing over the community. John Lovett (Federal Aviation Administration [FAA]) said that he would check the Alaska Supplement to evaluate the need to establish and/or modify more formal flight patterns when climbing out of town with a river departure. If necessary, FAA needs to publish flight patterns and altitudes to make users more aware to mitigate some of the noise impacts. There was a caution by a local pilot not to shift noise over to Trapper Creek (across the river).

Hydrology Issues

- Team members identified the larger surrounding area that would be included in the hydrologic/hydraulic studies. Discussions included the Dec. 2000 Master Plan EA that identified two conceptual mitigation sites - extension of the Alaska Railroad Bridge and a drainage swale at the Talkeetna Airport.
- One individual indicated that during the 1986 flood, he had to wear hip boots in certain areas within town. Apparently, the river was backed up behind the railroad bridge.
- The airport was not flooded and at that time the runway was lower; however, recent airport improvements have since raised the runway by roughly 3 feet.
- A pilot by the name of David Lee was recommended regarding obtaining photography of the 1986 flood, as David flew a Cub and worked at Talkeetna Air Taxi at that time.

Appendix

A. Individual Verbal Comments
B. Written Comments (attached)
C. Sign In sheet (attached)
D. Meeting Drawings (attached)

Appendix A - Individual Verbal Comments

Tim Cudney & Warren Lowry/ERA Helicopters

- Tim and Warren think that there will be significant demand for helicopter flightseeing based at Talkeetna Airport. They presently base their Jet Rangers at the Chulitna entrance to Denali National Park, and at Trapper Creek, and are working toward moving to Talkeetna Airport.
- They also stated that their immediate desire is to base 2 Jet Rangers at Talkeetna, and in the future to base 4 Jet Rangers at Talkeetna.
- Their preference is for Alternative C, East of 36 Threshold. They see several advantages to Alt C-close to the fixed wing apron, the most visible of all the alts, and good visibility between the Final Approach & Take Off area (FATO) and the runway.
- They would like to be able to park their Jet Rangers at least 200 ft to 300 ft away from Chinook operations.
- They provided us with a drawing they developed that shows a 75 ft by 75 ft FATO, parking for 4 Jet Rangers, and a developed lease lot area.
- They also suggested that we ask Cook Inlet Regional Inc. (owners of the Denali Alaskan Lodge) for their opinion of the heliport alternatives.

Jeff Davis/ADF&G; Jeff asked several questions about H&H and the heliport alternatives:

- Jeff asked about our flood study and design work. Told him about Jim's HEC-RAS model approach. Also mentioned the data Jim received on 1986 Q50 flood from USGS and the Weather Service. Jeff was interested that we were includingTwister Creek in the study.
- Jeff expressed dismay over Heliport Alternate C, (as shown on our conceptual graphics) said he was overhearing strong (ERA) interest in that option. He said the Department would have many questions on Alt C while Alt E would have little concern.
- Expressed his concern over locating a heliport so close to Twister Creek within a wetland habitat.

Mr. Eric Denkewalter/Talkeetna Aero Services.

With regard to the 1986 flood:

- There was surface water at the Swiss Alaska Inn. The water was moving slowly.
- There was no standing water on the runway.
- There was no water near taxiway or runway.
- No water was running toward Twister Creek along upstream side of railroad embankment.
- The water got very close to the low cord on the upstream side of the railroad bridge on the Talkeetna River. Harlan Legare (COE) mentioned that he had been told the water got within one to two feet of the low cord.
- Houses at the upstream end of Talkeetna, on the left bank, had water in the yards. Trees were moving in the water. (Homes in the vicinity of the intersection of Beaver and Mercedes Roads).
- Could not get a boat under the Talkeetna River Bridge during the flood.
- Don Lee, phone, was one of the first persons to fly after the 1986 flood. He may be able to tell us about where the water was.
- Vern Rauchenstein, Swiss Alaska Inn, is out of town now, but would be able to tell us about flooding near the Inn. Should be back in about two weeks.
- The Susitna River was higher than normal when the Talkeetna flooded in 1986.
- 1986 flood was due to rain on snow. It rained very hard at times.

- Dan Maynard could point out the height of the water to the surveyors. J.D. Lewis owned the property at the time.

Mr. R.G. Denny,
With regard to the 1986 flood.

- He will show the surveyors where the water was on the corner of Beaver and Mercedes Roads. He thinks that water was about 3 feet deep at the intersection of Mercedes and Beaver Roads.
- Houses in the vicinity of the Intersection of Beaver and Mercedes Roads were flooded. All the roads in this area were flooded (Beaver Rd and Mercedes Rd).
- Dave Parker's place was flooded.
- Several cabins were washed away in the flood.

Robert Gerlach and Billy Fitzgerald

- Robert and Billy stated that the only acceptable heliport was at the VOR site, and that noise at Talkeetna is a problem due to operators taking off to the south during the summer, making a right hand turn, and heading over the community on the way to Denali.
- Additionally, Robert stated that the only practical way to develop the airport is to develop the wetland area east of the runway. In his view, the community is squeezed between the river and the runway, and the airport keeps expanding to the west, and the river is eroding to the east.

Billy Fitzgerald/Chairperson for the Talkeetna Community Council,

- Billy said that peak time for aviation activities is probably around July 1st. Climbing gets going strong in early May and is over by June 30th. (Farshad said he could adjust the model to account for a peak even if he takes data in late May/early June provided he has a sizable sample.)
- He said that we should avoid doing field work noise sampling on heavy moisture days or with high winds, as it impacts noise readings.
- Did not like Alt E mainly due to a Bird Sanctuary north of site location. Dislikes D or A too for proximity to subdivisions. He only likes the VOR site—Alt F—it gets it out of town.
- Said our exhibit was incorrect--TK River Subdivision is farther to the north (he thought area was David Lee Subdivision?).
- Complained about ERA flights going over town and causing noise. (Ron Stroman pointed out that helicopter sound is not noise as much as the pressure/vibration of rotors and that 185's equipped with constant speed propellers are worse. Billy said the disturbance is still bad.)
- Mentioned a 20/20 Visions seminar w/DOT where the work groups all agreed to move airport to the Y location. DOT&PF is not aware of this conversation.
- Mentioned an alternative to VOR site is the Dump site to the south of VOR—ok w/him.
- Left hand traffic out is rare--Billy said 98%+ of traffic is 'Right-hand exit' toward McKinley.
- EMS facility is across from exist Heliport site—they use the ambulance to transport to Anchorage.
- Ron Stroman said DOT could establish flight patterns and have FAA Flight Standards enforce it.
- Military stages for 1 month typically during war games. Also they stop sometimes for lunch on the way to Fairbanks.

- Mr. Fitzgerald indicated that the only acceptable heliport alternative to the Community of Talkeetna was the VOR site.
- He indicated that there had been significant problems in the past generated by helicopters flying low over the community and creating excessive and unacceptable noise levels.
- Considerable discussion ensued and it was suggested that airport approach and departure flight pattern standards be modified to preclude flying over the community.
- Mr. Fitzgerald questioned whether helicopter pilots would adhere to the standards.
- He said that the community would not consider an alternative heliport site at the airport if the flight pattern were modified, and enforced.

With regard to the 1986 flood.

- At the peak, there was about 1 foot of water on the floor of his house.
- A stack of building materials was washed into the woods.
- Water was moving along the slough at the front of the house.
- The flood left 8 to 10 inches of silt on the floor of the house.
- The water in the yard was moving swiftly.
- They left the house when water started flooding the yard, and it was 5 days before they were able to return.
- Some houses, located even closer to river, did not get flooded because they were on higher ground.
- Three houses were washed down river. At least one of the houses was on the other side of the river.
- The marks from the peak water surface elevation have all been removed.
- Log jams on the banks of the river, diverted water at some locations.
- Billy drew the edge of the 1986 floodwater, on the left bank between the upstream end of Talkeetna and the sewage lagoon, on our aerial photograph. He said his line represents the edge of the flowing water. There were places where there was ponded water to the left of his line.
- Billy has talked to an older gentleman that remembers an ice jam on the Talkeetna River Railroad Bridge. However, this is not a common occurrence. Billy did not remember it ever happening since he has been watching the river.

Robert Gerlach/resident

- Robert does not like Alts A, B or D. He thought Alt E is not operationally desirable. Liked the VOR site (alt F) the best .
- Favors Talkeetna Airport expansion to move East only—NOT Westward. Said river is eroding riverbank to the west and with TKA being on the south it would "constrict community growth."
- Robert dislikes that most fixed wing air operations take off on Runway 18 and make a hard right hand exit directly over town, many B&B operations in path and noise is terrible when pilots don't cut prop pitch. A local wedding he attended was totally disturbed by this activity.
- Wonders why ERA uses a "mid-base approach" and why they can't do a Right Turn Traffic approach if they use the RT hand departure so much.

With regard to 1986 flood.

- He could not remember anything about water levels other than it felt like the river was threatening the community.

Steve Hanson/DOT&PF Airport Manager

- He indicated that he was opposed to any alternative heliport site located away from the airport because he does not have the resources or budget to maintain a facility located away from the airport.
- Steve mentioned that at least 3 additional operators had contacted him this year re: obtaining lease space or wanting to add helicopter operations. Talkeetna Air Service wants to add helicopter operations. Oregon outfit (Skycrane?) wants to base out of Talkeetna and also a small operator from King Salmon. No new lease space is available until this development occurs.
- Snow storage is key for Steve as his loader is small and cannot push snow long distances. He is using spaces for snow storage that people don't use in winter. General Aviation expansion will need to address snow storage areas.
- Steve liked Alternatives A, B & C alternates for Maintenance & Operations reasons (proximity to his area) and disliked Alt. F due to distance he must cover to service it.

Mr. Gene Jenny, With regard to the 1986 flood.

- Water was around the Swiss Alaska Inn. The water may have gotten as high as the first floor carpets.
- The house across the road from the Swiss Alaska Inn had water at least in the basement.
- The water near the Swiss Alaska Inn was moving slowly.
- Dan Maynard might be able to provide some information on water surface elevations, but has moved his house since the flood.
- Houses at upstream end of Talkeetna, on left bank, were flooded. (I believe we are talking about homes in the vicinity of the intersection of Beaver and Mercedes Roads).
- The railroad previously used a Cat to grade the right bank on the upstream side of the Talkeetna River Bridge to make more room for floodwaters.
- Steve Mahay would be a good person to talk to about the flood.
- This past year, railroad cars have been dug out of the Talkeetna River on the upstream side of the railroad bridge. Apparently they had been used to protect the bank from erosion. As the bank eroded, they ended up in the channel. At least one boat was damaged by hitting the railroad cars.

Susan Kelland/Resident

- Susan noted a 91/92 study by a consultant where the idea of a junior Potter Marsh with boardwalk and interpretive signs was proposed for the Twister Creek area near the Spur Road. She said this would be a tourist attraction/interpretive site. The idea was never funded and was forgotten. She said the University owns some of the land adjacent to the road ROW and the Airport property. They might be interested in going in with CIRI folks (Princess owners) on doing this. It was mentioned that the DOT is upgrading Spur Road (Jim Childers, Project Manager) and is in the early design stages.

Jim Kellard, Talkeetna Gifts and Collectables
With regard to 1986 flood.

- Jim thought that the water around the Swiss Alaska Inn did come from the Talkeetna River.
- St Bernards Church had water up to the floor.
- Jim suggested that we talk to Herb and Verna Thompson. They own Grama's Video.

Linette Lee (Don Lee's Wife)/Talkeetna Resident
With regard to the 1986 flood.

- She had several black and white photographs taken during the 1986 flood. She did not know what day they had been taken on, but thought it might have been on the day before the water crested. We borrowed three of the photographs taken near the railroad bridge and scanned them. One of the photographs is of the upstream side of the bridge and appears to show the water surface about 4 to 4.5 feet below the low cord. One of the photographs is of the dike on the downstream side of the bridge and shows the water just beginning to go over the top of the dike.

Don Lee/Talkeetna Resident
With regard to the 1986 flood.

- The FAA towers were flooded (Peters Creek NDB).
- No water ran down the upstream side of the railroad track, toward Twister Creek, at the airport.
- No water ran into Twister Creek from the Talkeetna River.
- Surface water from the Talkeetna River was definitely flowing past the Swiss Alaska Inn.
- Don looked at the "edge of water" lines that Billy Fitgerald and Steve Mahay had drawn and confirmed that they were as he remembered it.
- He had a video that showed the flood, but could not find it. He will call if he finds it.

Mr. Warren Lowry/Manager, Special Projects, ERA Aviation
Tim Cudney/Denali Manager, ERA Aviation.

- They both favored keeping the heliport where it is, or as a second alternative, relocating it across the runway from its existing location (the wetlands alternative).
- They suggested a linear development along the eastside of the runway to minimize wetlands impacts.
- They also favored segregating large helicopter operations from small helicopter operations, and preferred to have a separate landing area for ERA's helicopters.
- They described anticipated requirements for their lease lot and presented Steve Cinelli with a sketch of a proposed layout for their facilities.
- They indicated that they preferred to keep the heliport as close to the train station as possible to minimize the distance tourists must walk to reach the heliport.
- They disliked the VOR alternative the most. They indicated they were considering having a sales counter near the train station that would provide vehicular transportation to the heliport site.

Steve Mahay/Talkeetna Resident
With regard to the 1986 flood.

- Water was within 1 foot of the low cord on the upstream side of the bridge.
- There were 10 to 12 foot standing waves in the Talkeetna River channel below the railroad bridge, on the day of the peak.
- At the Swiss Alaska Inn the peak water surface elevation was 3 to 4 inches below the floor.
- At Mahay's Office, across the street from the Swiss Alaska Inn, the peak water surface elevation was within 3 inches of the floor. The boats on trailers parked there were beginning to float. He thought, at the time, that he could have driven a boat to his office.
- He felt the railroad bridge was very close to being washed out.
- The bridge was not collecting debris. However, he thought that if the water rose much further, the bridge would start to collect debris.

- The pedestrian bridge at Billlon Slough was not there in 1986.
- Steve thinks the railroad bridge needs to be increased in size, if it is to pass a flood greater than the 1986 flood.
- The river had almost been at flood stage two weeks before the 1986 flood. So the ground was already wet. There was new snow in the mountains.
- The Susitna River was higher than the average annual peak stage when the Talkeetna River was at peak stage.
- He drew the edge of the 1986 floodwater, between the sewage lagoon and the railroad embankment, on our aerial photograph.
- Twenty years ago, all of the water at the railroad bridge was in the right channel of the Talkeetna, at the railroad bridge.

Bill Post/K2 Aviation,

- Lives on Beaver Road. First house on south side. Tan house with green trim.

With regard to 1986 flood.

- He will point out a high water mark from the flood to us.
- Bill noted that the right hand exit on RW 18 is standard because the river departure gave the pilot a good emergency landing location in the event of engine failure.
- Bill said he reduces engine RPM and adjusts the pitch of the propeller to reduce noise.
- Bill asked about status of adjacent float plane ditch to 18/36—Laurie said the Master Plan did not choose to forward that option due to funding/usage limitations, also the 700' parallel runway separation per Airport Design pushes it near the edge of property line.

Linda Ramsey,

With regard to 1986 flood.

- Lives in Denali Subdivision, Block 1, Lots 16 and 17.
- The water almost went over the dike on the downstream side of the railroad bridge.
- Basement on Lots 16 and 17 was flooded.
- No surface water from river on Lots 16 and 17.
- Did not see water flowing along upstream side of railroad embankment moving toward Twister Creek in vicinity of the airport.

Roberta Sheldon/Supervisor on the Talkeetna Flood Control Service Area)

- She stated that the approach to the flood issues and associated studies looked good to her, and she did not have any comments at this time.
- There has been a dramatic change in the Susitna River at the mouth and downstream of the Talkeetna River.
- It is Roberta's personal opinion that the heliport should be relocated away from the airport because the airport is becoming congested, especially if a floatplane landing area is created. Noise is also an issue.
- Roberta recommends relocating the heliport to the unused, covered Mat-Su Borough landfill located at the intersection of Talkeetna Spur Road and Comsat Road. She cites convenient highway access and proximity to Talkeetna as good reasons for this recommendation. Roberta also suggests that the helicopter operators use a shuttle bus for transporting passengers to/from the airport.

Ron Stroman/DOT&PF Leasing

- Ron said he would work out security fencing locations with each lease owner. The pedestrian pathway will be in the open strip between lease line and edge of roadway. May not pave it if other improvements are deemed more important.

- Ron would like the aircraft parking area in front of the Talkeetna Air Taxi paved to allow them to park their Beaver outside of the taxiway. Would also allow room for snow storage too.
- Ron would like to see the aircraft viewing area because of frequent incursions by tourists onto the runway and commercial apron. Wants good signage directing folks to view ing area too.

Harold Sousa,

- Several people from Switzerland were conducting a 100-year flood analysis on the Talkeetna River. Harold took them out in his riverboat. They were core sampling trees and looking at flood debris in order to estimate the 100-year flood.

With regard to 1986 flood.

- Flood washed out a couple of cabins located on the banks of the river.
- There was water on the ground around the Swiss Alaska Inn, but he thought it was standing water, not water from the river. He said that the ground water was very high.
- The dike on the downstream side of the railroad bridge probably saved the town.

Herb Thompson/Talkeetna Resident

With regard to the 1986 flood.

- Herb said he marked the water surface elevation using a pile of stones at 2PM. It turned out to be the highest level of water.
- The pile of stones is not present, but he said the peak elevation was equal to the elevation at the upstream corner of his lawn in the backyard. He also said the water was up to the top of his hip boots, as he crossed the woods between his backyard and the road behind his house. He said the road behind his house was not covered by water and had been raised somewhat since the 86' flood.

CH2M HILL
301 West Northern Lights Boulevard
Suite 601
Anchorage, AK
99503-2648
Tel 907.278.2551
Fax 907.277.9736

CH2MHILL

November 1, 2001

167651.A1.HP.03

Mr. Don Baxter, P.E.
State of Alaska, Department of Transportation and Public Facilities, Central Region
P.O. Box 196900
Anchorage, AK 99519-6900

Subject: Airspace Review of proposed heliport on the Talkeetna VOR/DME property

Dear Mr. Baxter:

The purpose of this letter is to request that the Federal Aviation Administration (FAA) conduct a formal evaluation of the operational impacts to the Talkeetna very high frequency omnidirectional-radar (VOR) distance measuring equipment (DME) that may result from constructing and operating a heliport on the property. The TKA VOR/DME property is shown in Exhibit 1.

Project Description

The State of Alaska Department of Transportation and Public Facilities (ADOT&PF) has retained CH2M HILL to complete the Talkeetna Airport (TKA) Improvements, Phase II project. The project includes a Heliport Relocation Study, which will analyze six different heliport location alternatives and recommend a preferred alternative for development consideration (Exhibit 2). After the location alternative has been approved, final design and construction will occur with the TKA Phase II improvements.

Helicopter Activity at Talkeetna

The April 1997, *Talkeetna Airport Master Plan Phase One Report* contains forecasts of helicopter operations at TKA. Table 1 summarizes these forecasts.

TABLE 1
Helicopter Activity Forecasts, Talkeetna Airport

	Year			
Activity	2000	2005	2010	2015
Military	500	500	500	500
Other	450	500	550	600
Total	950	1,000	1,050	1,100

The military fleet mix includes the Boeing Rotorcraft CH-47 Chinook and the Sikorsky UH-60 Blackhawk. The "other" category includes small helicopters such as the Bell 206 Jet Ranger and the American Eurocopter 315 Lama.

Alternative Description

The TKA VOR/DME Location-Alternative F (Exhibit 2), is located on FAA property at the TKA VOR/DME site, approximately 1.6 miles south of Talkeetna Airport. The site consists of about 140 acres located between the Talkeetna Spur Road and the Susitna. The western portion of the site is characterized by a rounded hilltop, upon which the VOR/DME antenna is located. USGS topographic maps of the area indicate that the elevation of the facility is above 550 ft (Exhibit 3). The eastern portion of the property is hilly terrain with a ravine adjacent to the Talkeetna Spur Road right-of-way. During the course of our 10/18/02 site visit, the Alternative F location appeared to be within steeply sloping terrain adjacent to the ravine and Talkeetna Spur Road. Tree clearing and earthwork would be necessary to create a level pad area. The elevation of the proposed heliport would be about 450 ft. The approach/takeoff paths for the proposed heliport would be parallel with the Talkeetna Airport runway.

Preliminary Alternative Analysis

Developing this alternative will require consideration of the purpose and operational characteristics of the TKA VOR/DME. TKA VOR/DME is part of the VOR Federal airways system, and is also used as a terminal navaid for TKA. FAA Order 6820.10 *VOR, VOR/DME, and VORTAC Siting Criteria* provides guidance and references for use in certain practical applications of the VOR, VOR/DME, and VORTAC in the FAA's National Airspace System (NAS). Chapter 3 provides information that may be used to evaluate the effect that physical changes proposed in site area may be expected to have on the performance of existing navigational sites. Additionally, Advisory Circular (AC) 150/5300-13, *Airport Design*, contains siting and clearance guidelines for navaids and air traffic control facilities that influence airport planning.

Siting and design standards that apply to all VOR, VOR/DME, and VORTAC facilities do not exist. Generally, several factors are important to VOR/DME performance, including the following:

- A general rule of thumb is that ground slope and ground smoothness is very critical within the first 1,000 ft of the antenna location, with secondary attention given to the surrounding terrain within a 1-mile radius.
- The ground in the vicinity of the antenna must be level or must fall away gently from the ground level at the base of the structure.
- As the distance from the antenna site increases, the terrain features become less important.

- Chain link fences are not permitted within 500 ft of the antenna.
- Power and control lines must be installed underground within 600 ft of the antenna.
- No overhead conductors, except those serving the site, are permitted within 1,200 ft of the antenna.
- No structures shall be located within 1,000 ft of the antenna.
- All construction in the vicinity of the antenna must be reviewed by the appropriate FAA office.
- The Real Estate Data Drawing (Exhibit 1) shows that a 1,300 ft radius easement is present around the TKA VOR/DME antenna.

Preliminary Conclusions

On the basis of the information available, it appears that this alternative complies with the applicable published siting criteria. However, FAA Order 6820.10 requires that all construction in the vicinity of the antenna must be reviewed by the appropriate FAA office. To assist us in establishing evaluation criteria for the Heliport Relocation Study, we wish to resolve the issue of whether Alternative F is viable to the FAA. We request that the FAA provide a written response outlining their findings and requirements for this alternative.

If you have any questions, please contact me at (907) 276-6833 x210.

Sincerely,

CH2M HILL

David R. Coolidge, P.E.
Project Manager

Enclosures: Exhibit 1 – Real Estate Data, Talkeetna, Alaska
Exhibit 2 – Heliport Alternatives
Exhibit 3 – USGS Topographic Map

ANC/TP4903.doc/013040003

CH2MHILL TELEPHONE CONVERSATION RECORD

CALL TO _____ PHONE NO. e-mail Randy@alaska.net

DATE 09-NOV-01

CALL FROM Randy Kilbourn TIME 2:00 ☐ AM ☒ PM

MESSAGE TAKEN BY Cinelli PROJECT NO. 167651

SUBJECT Talkeetna Airport Imps, Phase II

Randy called asking about the October 17 public meeting. Both he and Jim Olnock were out of town that day. Randy requested that we send public meeting info to him. He provided this address: Randy Kilbourn
Box 942
Talkeetna, AK 99676
randy@alaska.net

He also had the following comments:

(1) Change traffic on 18 to Rt hand to eliminate conflicts with Christiansen Lake

(2) Develop a float pond adjacent to the runway

(3) Asked about the project schedule

REV 10/96 FORM 4

CH2MHILL TELEPHONE CONVERSATION RECORD

CALL TO _____ PHONE NO. 733-2231

DATE 15-Nov-01

CALL FROM Daryl Miller, NPS TIME 2:00 ☐ AM ☒ PM

MESSAGE TAKEN BY Cinelli PROJECT NO. 187651 Public Inv.

SUBJECT Heliport Relocation

1) Daryl Miller is in charge of helicopter operations at the Talkeetna Ranger Station.

2) The NPS is responsible for nearly all of the emergency medical evacuation that is related to Denali Nat'l Park.

3) The Army's CH-47 from Wainwright and the Air National Guard's Pave Hawk's from Kulis work in conjunction with NPS for search and recovery.

4) NPS coordinates all of the rescues. Typically there are 10-20 rescues per year, and as many as 28 or 29 in 1992. The lowest he knows of is 7 or 8 in one year.

5) Daryl is concerned that relocating the heliport will impact NPS's ability to provide emergency medical support.

6) Patients are transferred from the existing helipad to fixed wing aircraft, either a medevac operator, Doug Geiving, or Talkeetna Air Taxi.

7) Relocating the heliport away from the airport will hinder their ability to transfer patients as well as to respond to emergencies.

8) Daryl was unable to attend the public meeting. He is going to pick up a package of meeting materials tomorrow, 16 Nov.

REV 10/96 FORM 4

P.O. Box 766
Talkeetna, AK 99676
November 18, 2001

Dave Coolidge, P.E.
Project Manager, CH2M HILL
301 W. Northern Lights Blvd. Suite 601
Anchorage, AK 99503

Via Fax: 907-257-2003

Dear Mr. Coolidge:

These are my comments on the TALKEETNA AIRPORT INPROVEMENTS PHASE II project.

I have great concern that expansion of the Talkeetna airport will lead to the nightmare currently experienced in Juneau, where the number of helicopter trips to local glaciers has grown from 662 in 1984 to 16,583 last year. One of the main reasons I live in Talkeetna is for peace and quiet. Already, air traffic noise is bothersome, although, at current levels, not unduly disruptive. I do not wish there to be an increase in the number of flights, for either fixed wing aircraft or helicopters. In other words, I do not wish to see the airport expanded because to do so would adversely affect my quality of life.

I find helicopter noise especially intrusive, and do not wish this plan to recommend development of additional helicopter infrastructure. The location of a heliport is particularly sensitive. I believe the heliport should be where it is now (i.e., the place currently used by the NPS llamas and military chinooks). The VOR site isn't appropriate because it seems to be on a fixed wing landing/takeoff path and because it isn't the best use for a place with such a world class vista.

Please keep in mind, also, that the Talkeetna Community Council has hired a planner, Chris Beck and Associates, to prepare an in-depth community plan. This plan is being funded by an Congressional appropriation administered through the National Park Service. The target completion date is Fall of 2002. This community is trying very hard to address the tourism issue and the adverse impacts that tourism is having on the small town, rustic, historical character of Talkeetna and the quality of life of its residents. What happens at the airport has a direct bearing on these impacts. I urge you to coordinate with our community planning effort, and make a conscious decision to ensure that the airport plan is part of the solution and not part of the problem.

Sincerely,

John Strasenburgh

file
167249.A1.11

Cyra-Korsgaard, Linda /ANC

From: Coolidge, David /ANC
Sent: Wednesday, November 21, 2001 1:53 PM
To: Cyra-Korsgaard, Linda /ANC
Cc: Cinelli, Steve /ANC
Subject: FW: Airport "Improvements"

-----Original Message-----
From: kef@pocketmail.com [mailto:kef@pocketmail.com]
Sent: November 18, 2001 9:34 PM
To: Coolidge, David /ANC
Cc: don_baxter@dot.state.ak.us
Subject: Airport "Improvements"

Comments from Kathleen Fleming, Talkeetna resident, RE: TKA State Airport Improvements, Phase II

The only responsible action takes into consideration what sort of place the residents want their town to be. Certainly we want economic health which includes a visitor industry. But growth at any cost? Absolutely not! One of the costs I feel is utterly unacceptable is the increased traffic and noise level produced by the Airport expansion you are proposing. The noise level in town and along the flight path to Denali is already beyond acceptable for many people.

I do not believe that all communities and governments owe it to all businesses and industries an unlimited right to exploit every opportunity. Here is a town that is a community of local residents, it happens to be historic, and "quaint", and in a location conveniently near wilderness and North America's tallest mountain. As one of numerous residents who love Talkeetna for it's people and environment, and who have made various sacrifices to live in this place, I urge decision makers to consider the community as the most important factor. I have very little sympathy for any business owned by non-residents which comes in to exploit, alter and degrade this town. Such are the airplane and helicopter businesses hoping for new lease lots.

In my opinion, the current level of summer activity at the State Airport is already too much. More, especially helicopters, would be sickening. MY PREFERED ALTERNATIVE IS "NO ACTION". No "improvements", no additions, no expansion.

Actually, to me the best case scenario would be to move the airport to a location along the Parks Hwy. This would reduce the incredible traffic problem Talkeetna suffers with each summer, since so many people are drawn here by the air taxis. I realize this is not practical, given the expense of such a move. But considering that East Talkeetna's flood problem is greatly exacerbated by the location of the runway, with the

south end so near the railroad tracks as to restrict the flow of flood waters, it would be a benefit to the town to shorten the runway and remove material at the south end. Flood waters would then flow easily into the Twister Creek wetlands, lowering the water level in East TKA. Expansion and raising the flood level is backwards. All of your proposed flood solutions are unpalatable to me.

I say DO NOTHING, and no more bowing to businesses that are so greedy and narrow minded as to exploit this town and thereby deminish the already endangered community which residents and aware visitors may cherish.

Seriously,
Kathleen Fleming
PO Box 248
Talkeetna, AK 99676

on mail list

TO: Dave Coolidge, P.E., Project Manager, CH2M HILL
Don Baxter, P.E., Project Manager, DOT&PF

FROM: Ruth D. Wood, P.O. Box 766, Talkeetna, AK 99676
(907) 733-6874

RE: Comments Talkeetna Airport Improvements Phase II

DATE: November 18, 2001

I attended the open house in Talkeetna on October 17, 2001. Even though it was billed as a public meeting, I found it very difficult to find anyone who could answer a lay person's questions about a lay person's concerns. I define "lay person" as a Talkeetna resident who is not a pilot and not professionally connected with the airport. The planners didn't seem to know a lot about aviation, and the aviation experts didn't seem to know a lot about planning.

So, I will relate my concerns here. First, I do not want to see the airport expanded in any way including any new commercial aprons. At the open house I was told that the expansion was being planned due to demand. Well, demand is a never ending spiral. Expansion leads to more demand which leads to more expansion. Rather than planning expansion, I would like to see a study that addresses what size the airport should be from the town's prospective. An expanded airport will have varied and significant adverse impacts on the residents of Talkeetna from more noise to more people, and no one is explaining that to the people who live here.

Second, although I am glad you plan to do hydrologic/hydraulic studies, the fact is that the airport's prior expansion has made the area more susceptible to flood. And, future expansion will require huge amounts of money to be spent for flood-plain mitigation measures to avoid exacerbating the problem. The airport is in a low, wet area, and rather than planning new development which will require additional fill, the simplest solution is to leave the airport the size it is now.

If you leave the airport the size it is now, there is no reason to move the heliport. I don't like any of the alternatives for the heliport, and I certainly don't want a heliport that would allow large commercial operations such as those in Juneau. Just reading about their problems makes me shudder. The state should solve those issues before bringing them to other communities.

In addition, expanding the airport will have repercussions beyond the immediate area. The flights from Talkeetna are primarily flight seeing. The flight path is over recreational cabins, Denali State Park and Denali National Park. These flights have already increased exponentially and generate a high number of noise complaints. I would like to see a concerted effort to bring Talkeetna residents,

remote landowners, and representatives from both the state and national parks together with state and federal airport planners to address the problems caused by the current level of flights before planning an expansion that will lead to more flights, more noise, more wildlife displacement, etc. Mt. McKinley is an extraordinary scenic draw, but hasn't the example of unlimited growth in flight at the Grand Canyon taught us anything?

The comment sheet mentions environmental documentation. I would like the studies to give a detailed analysis of the wetlands functions and how they will be affected by any expansion. I would like the noise studies to address the effects of increased noise from both fixed wing aircraft and helicopters on both people and wildlife, and encompass the entire flight path from Talkeetna to the Mountain.

Thank you for this opportunity to comment.

Ruth Wood

To: Dave Coolidge - To fax - p1 of 7

TALKEETNA AIRPORT IMPROVEMENTS PHASE II

Public Meeting

COMMENT SHEET

October 17, 2001

The State of Alaska, Department of Transportation and Public Facilities (DOT&PF) and CH2M HILL, are beginning the **Talkeetna Airport Improvements, Phase II** project. An important aspect of this project is the public involvement process. Today is our initial public meeting, the first in a series of public information meetings. The purpose of this meeting is to introduce the design team and to solicit public comments and suggestions concerning the project. The project will include general airport improvements, relocation of the existing heliport, noise analysis, hydrologic/hydraulic studies, and flood plain mitigation measures. Input received at the meeting will be considered in preliminary design, preparation of engineering studies and environmental documentation for the project. Please complete this *Comment Sheet* and leave it prior to your departure tonight. Or, if you prefer to complete it later, please return it to the address below by November 19, 2001.

Dave Coolidge, P.E.
Project Manager, CH2M HILL
301 W. Northern Lights Blvd. Suite 601
Anchorage, Alaska 99503
Voice (907)276-6833, Fax (907) 257-2003
e-mail: dcoolidg@ch2m.com

Don Baxter, P.E.,
Project Manager DOT&PF
P.O. Box 196900
Anchorage, AK 99519
Voice (907) 269-0610, Fax (907) 269-0620
e-mail: don_baxter@dot.state.ak.us

NAME: Susan Kellard

ADDRESS/ZIP P.O. Box 101 Talkeetna, Ak 99676

TELEPHONE: (907) 733-2300 hm. 733-2710 wk.

E-MAIL Fax 733-2720

Comments/Suggestions Concerning the Phase II Airport Improvements:

I'm sending you a packet of information that points out a need for the Twister Creek Slough boardwalk at the south end of the Talkeetna Airport. A planning study for the community by Chris Beck & Assoc. is about to start. The Twister Creek project is on the list of items to be included. This could be a benefit for local children and adults as well as visitors as a wonderful educational opportunity like a miniature Potter's Marsh (south of Anchorage). It should also be an additional trail in the area near town and a safe alternative to walking along the highway for people who want to get to and from Talkeetna to the Talkeetna Alaska Lodge. It would also be much shorter distance.

A safer railroad crossing for pedestrians would be at the highway crossing that connects the proposed bicycle/walking path ~~that~~ will parallel the Talkeetna Spur Rd into town.

As this will assuredly be a community future project please include this in your plans.

Dave Coolidge, P. E.
CH2M HILL
301 W Northern Lights Blvd. #301
Anchorage AK 99503

11/19/01

Re: Talkeetna Airport Improvements Phase II

Dear Mr. Coolidge:

Please accept my on-record comments on the above subject.

First, I propose the air traffic pattern for runway 18 be changed to 'right-hand'. Fully 80% of the traffic is to and from the northwest. Right traffic for 18 will substantially enhance that traffic flow, greatly reduce noise and eliminate traffic over the town site, and remove conflict with Christiansen Lake seaplanes. As a matter of fact, departing traffic from 18 is currently right-hand, in violation of current guidelines. The new pattern will normalize that practice and reduce the potential of mid-air collision.

One objection to the change is the conflict with the 'Village Strip'. I disagree. The pattern for 36 is now over the strip, with no apparent conflict, even with the unconventional departures from 18. The strip traffic is barely occasional, at best. I would imagine that total traffic at the strip is less than 200 movements per year, compared to 200 per day at the State Airport in the summer. Again, the new pattern will eliminate the current pattern entry from the NW which is directly over the town and the strip at low altitudes.

We have formally requested this pattern change from both Alaska DOT and the FAA. Both have told us the other agency has jurisdiction. By raising the issue here I hope to bring it to a common awareness and resolve it.

2. I assume "ARB" is the Airport Rotating Beacon. If so, you have sited the present location incorrectly. However, I recommend that the beacon and the segmented circle both be co-located in the proposed location for the ASOS. All three items should be located apart from the clutter of buildings for maximum visibility.

3. The access taxiway from the new proposed commercial apron is too narrow. It should be at least 100' wide to provide for passage of two aircraft and an easier, wider turning radius.

4. The proposal drawing does not indicate access from the transient apron to the runway.

5. An accommodation should be made for skiplanes. I suggest lengthening the overrun area on the north end of the runway and providing parking between the runway and the DOT structures.

6. Access to the DOT M&O facility should be from Beaver Road. This eliminates the necessity to acquire property, move the FSS, and will expand the area available for more lease lots and transient apron. Bill's Road should be only be used by airport traffic and could be the connector for the transient apron, new lease lots, and the proposed ski plane area. Beaver Road access will keep highway maintenance vehicles separate from aircraft traffic and remove the potential of corrosive salt spills on the airport.

7. The FSS should not be moved. It is unnecessary and expensive.

8. Almost 100% of pedestrian traffic on the ramp is transient pilots and their passengers walking to and from the city center. This is an extreme hazard. From experience, these people disregard simple guidelines to avoid taxiing aircraft. More effort is needed to inform the pedestrians to stay off the ramps. Special effort should go toward fencing, signage, and walkways.

9. The heliport should be placed at the Alternate E site or secondarily the Alternate A site. E fully accommodates the conflict with the traffic patterns and remains in sight of FSS. A is also acceptable, with easier access and probably less development cost. The VOR alternate is ridiculous. Alternate C is in the wetlands, has access problems, and ground traffic would be dangerously close to landing air traffic.

10. There are more than twice as many seaplanes in the Talkeetna area as there are suitable parking places. I propose a float ditch be built parallel to and northeast of Runway 18-36. A 4000' long channel could probably be located on the edge of the wetland area, with the north end almost at Beaver Road and the south end about abeam the DOT buildings. The excavated material could be used for airport construction and highway projects. The ditch could be used as a skiplane facility. It also could be a flood water 'relief', channeling flow from the sloughs north of the airport to the Twister Creek drainage, around the airport. Even though water levels may fluctuate, it would be no different than other state facilities, and it is much more acceptable than parking an aircraft on a river or squatting on local lakes. The area could be secured and produce revenue. Properly regulated installations would do away with the environmental vulnerability that is present at Christiansen Lake. It would also bring the seaplane traffic under the airport umbrella, eliminating current conflicts.

Randy Kilbourn
PO Box 942
Talkeetna AK 99676

Cc: Don Baxter AlaskaDOT&PF
Steve Cinelli, CH2M HILL
Jim Okonek, Talkeetna Community Council

16161
Public Involvement

Cinelli, Steve /ANC

From: Coolidge, David /ANC
Sent: November 21, 2001 1:53 PM
To: Cyra-Korsgaard, Linda /ANC
Cc: Cinelli, Steve /ANC
Subject: FW: TKA Phase II Comments

-----Original Message-----
From: Jim Okonek [mailto:jokonek@alaska.net]
Sent: November 19, 2001 9:49 AM
To: Coolidge, David /ANC
Subject: TKA Phase II Comments

Name: James F. Okonek
PO Box 985, Talkeetna, AK 99676
Phone 907 733 2176
e-mail jokonek@alaska.net

Comments:
1. The best heliport alternative is E for the following reasons:
a.This site has the least negative impact to airport lease holders and the community.
b.There is good visual contact to this site from either FSS sites.
c.Most important the E site won't interfere with a hoped for Runway 18 traffic pattern change to right turns.
d.Helicopter traffic would not interfere with fixed wing landing, take-off or importantly taxi traffic.

2.All other heliport alternatives have negative aspects:
a. The VOR site would cause road traffic hazards and a noise problem at the hotel and probably to East Talkeetna with flights to McKinley.
b.Alternate B is too close to the village and airport runway.
c. Alternate B Would eliminate the much needed planned commercial apron.
d.Alternate C road access presents a security problem unless there is a gate, and a gate would not be manageable.
e. Alternate C would interfere with construction of a float plane ditch. Don't do that!
f.Alternates A and D are too close to Denali subdivision, could create undesirable vehicle traffic through the Transit apron area and there is very limited visual contact with the FSS sites.
3.There is no connection between the transit apron and the North South taxiway. It is desirable.
4.The access road through the airport from 2nd Street to the DOT maintenance facility is both unnecessary and undesirable. Highway sand should not be trucked through the airport. Additionally this road takes up needed aircraft parking space. Make road access to this facility off Beaver Road. Make access to the vehicle parking for the transit apron directly from Denali subdivision. Changing DOT access to Beaver Road eliminates any need to move the FSS building.
5. There ought to be small lease lot just north of the transit apron.
6. Don't move the FSS.
7.The ARB isn't at the FSS, its at the segmented circle. There is no new location shown for the circle. Locate it somewhere south of the new commercial apron.
8. Don't put the AWOS where it will interfear with a float plane ditch.

9. You have shown restricted taziway access to the new commercial apron, the same mistake you plan to correct at the existing apron.

Say what!
10. There ought to be a ski plane operating and parking area.
11.The pedestrian walk ways and security fences are good additions.
12. There ought to be water and sewer plan for every lease lot.

Thank You
Jim Okonek

167651
Pub Ltr Inv.

Cinelli, Steve /ANC

From: j. Bondurant [n3829j@yahoo.com]
Sent: November 20, 2001 11:13 AM
To: don_baxter@dot.state.ak.us
Subject: Talkeetna Airport Master Plan

Dear Mr. Baxter; November 19, 2001

I support these alternatives for the Talkeetna Heliport location with what I consider to be the best one first. They are:

1. The present location, or slightly south of the present location in the grove of trees there.
2. East of the runway at the south end.
3. The Northeast option.
4. The VOR site.

Regarding the first site: It is the preferred site by the army and the operators because it is close to businesses and facilities. It doesn't have as many noise complaints because it is already in use and people are used to its use. Also, there are no new traffic patterns added to the existing airport traffic pattern. I think a helicopter touchdown zone could be placed several hundred feet south of the end of the runway with a taxiway to parking. I think this would be as safe as any option. I realize that plans have been made for lease lots in the area, but it would be better to change those plans now than to put the heliport in an undesirable location.

The second site listed has many of the same advantages of the first site.

The third site (Northeast) could be made to work by including some noise abatement procedures, such as : no straight-in approaches from the north; place the site as far south as possible; turn base leg well south of the houses north of the heliport site. Noise abatement procedures are commonplace in the lower 48, and any helicopter pilot should be able to handle them with ease.

The VOR site needs to be reworked so the landing area is farther from the road, but it holds promise.

I think the Northwest site should be eliminated from any further consideration because of the damage to adjacent properties. A site out by the sewage lagoons could work if there is no clearing between it and the main airport.

Please also refer to my letter for the March 2001 meeting in planning the airport layout.

Thank you,

Jok Bondurant

SPEED MEMO

SUBJECT: Talkeetna Heliport Review: Talkeetna Airport
NRA Case # 01-AAL-219NRA, Talkeetna, AK

TO: AAL-203, AAL-472JL, AAL-530, SWA-SSC,

ANI-720, ANC FPO AVN 123 , AAL-620,
TGN-SSC (A. Vaillanuevo)

SIGNATURE OF ORIGINATOR:

AAL-612D John Lovett, P.E.
November 20, 2001 271-5446

INITIAL MESSAGE: Attached is a draft copy of a proposed new heliport location for the Talkeetna Airport that will be located 1,300' from the VOR. Please review this proposed location and comment. The DOTPF is developing a new ALP for Talkeetna Airport and is studying several potential sites for the new heliport to serve this airport.

Please review and comment in accordance with FAAH 7400.2D. Please provide replies to AAL-612D prior to December 5, 2001.

REPLY MESSAGE:

_____ No objections or comments.
_X_ No objections with condition(s). (See attached sheet.)
_____ Objectionable. (See attached sheet.)

SIGNATURE OF REPLIER:

AAL-203

DATE:

11/21/01

SPEED MEMO

RECEIVED
NOV 2 3 2001

SUBJECT: Talkeetna Heliport Review: Talkeetna Airport
NRA Case # 01-AAL-219NRA, Talkeetna, AK

TO: AAL-203, AAL-472JL, AAL-530, SWA-SSC,

ANI-720, ANC FPO AVN 123 , AAL-620,
TGN-SSC (A. Vaillanuevo)

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Please review and comment in accordance with FAAH 7400.2D. Please provide replies to AAL-612D prior to December 5, 2001.

REPLY MESSAGE:

_____ No objections or comments.
_____ No objections with condition(s). (See attached sheet.)
X Objectionable. (See attached sheet.)

The Air traffic Division objects to any further development at the Talkeetna Airport until the traffic pattern conflicts between the Village/City strip and the Talkeetna Airport are resolved. This is a severe Safety issue that cannot be ignored.

SIGNATURE OF REPLIER:

DATE: 11/30/01

AIR TRAFFIC

SPEED MEMO

SUBJECT: Talkeetna Heliport Review: Talkeetna Airport
NRA Case # 01-AAL-219NRA, Talkeetna, AK

TO: AAL-203, AAL-472JL, AAL-530, SWA-SSC,

ANI-720, ANC FPO AVN 123 , AAL-620,
TGN-SSC (A. Vaillanuevo)

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Please review and comment in accordance with FAAH 7400.2D. Please provide replies to AAL-612D prior to December 5, 2001.

REPLY MESSAGE:

____ No objections or comments.
____ No objections with condition(s). (See attached sheet.)
_✓_ Objectionable. (See attached sheet.)

within 2000' restricted area of VOR. Would Prefer they look some place else

SIGNATURE OF REPLIER:

John Liebig AAL-472
AIRWAY FACILITIES

DATE:

12/5/01

167651
Correspondence In

U.S. Department
of Transportation
Federal Aviation
Administration

Route Slip

To: John Lovett, AAL-612D Date: November 21, 2001

Subject: Talkeetna Helicopter pad

Action:
_X_ Per Your Request
_X_ For Your Information
___ Per Our Conversation
___ Note and Return
___ Discuss with Me
___ For Your Approval
___ For your Signature
___ Comment
___ Take Appropriate Action
___ Please Answer
___ Prepare Reply for:

Remarks:

John, I looked at the proposed Talkeetna helipad sites in NRA 219. The VOR site is not the best idea, considering that it will be within 600 feet of the VOR and the final approach path of the VOR approach. The minimums for the approach would only provide about 550' of separation at best. Airborne helicopters would be even closer to both, the approach centerline and any aircraft flying the approach. I think it's a less than desirable location. Location C has at least one issue. The road going to it could possibly be an obstacle for night IFR approaches. In ERPS Para 251 there is a slope starting 200' out from the threshold, going up at a 20:1 Slope. If the worst case vehicle would not penetrate this slope then location C would work. Otherwise, they need to either, move the road out more, lower it, or look at another site for the pad.

Richard W Girard AAL-203
All Weather Operations and
Programs

Phone: 271 3578 FAX: 271 1665

FLIGHT STANDARDS

10/05/1 Comments

CH2MHILL *MEETING NOTES* PROJECT NUMBER: _____ SHEET 1 OF 1

NOTES ISSUED BY: _____

REGION: _____ DATE: 12.3.01

SUBJECT: MTG. W/ NPS RE: TKA HELIPORT STUDY

MEETING DATE: 10 AM MON. LOCATION: _____

ATTENDEES:

DARYL MILLER/NPS RANGER
Dave Coolidge
NOTES BY: DLC

- SEARCH & RESCUE MOU'S
- CLIMBER USAGE DATA (PRIOR & FORECAST)
- Steve Cinelli

TOPICS DISCUSSED	ACTION/NOTES
DARYL SAYS: APRIL - MID JULY IS NPS SEASON	
• BY MID JULY NPS DOES NOT HAVE MUCH AT 7000' KAHILTNA	
• NOISE LEVEL IS ALWAYS AN ISSUE W/ COMMUNITY BUT IS A	
• NPS HAS 185 & A HUSKY FIXED WING	
• THEY WANT TO USE THE LLAMA AT A PADSITE NEAR THE AIRPORT SITE	
• * 6 AIR TAXI CONCESSIONAIRES CAN LAND ON THE GLACIER	
- W. BUTTRESS I ST CLIMBED IN 1951 PRIOR IT WAS N. SIDE ONLY	
AIRCRAFT - 2300 CLIMBERS 1300 + 880 ON OTHER AREAS FOR 01' % MARKET (1500 IS MAX. FOR PLANNING) FAT 60%	
2 GUIDE CONCESSIONS ALLOWED IN PRESERVE	
NPS MUST APPROVE ANY CHANGE IN CONCESSIONAIRE	GREEN
NPS ALLOWS "LANDINGS" BASED ON USAGE	EVOSON
ROTOR CANNOT LAND ANYWHERE IN PARK. (6.2 MIL ACRES)	KZ
BUT FIXED WING CAN IF YOU HOLD A PERMIT	
27,000 VISITORS TO NPS IN 00'	
• WILL NPS EVER LIMIT THE NO. OF FLIGHTS TO MTN.? WILL NPS ALLOW USE OF	RA
TKA UNINCORPORATED TOWN - COMMUN. COUNCIL HAS NO REGL. POWER (BOROUGH)	AIRSPACE
WHEN DARYL ARR. FOLKS AND 1 OR 2 PUNKS NOW IT'S 3-5	
* CFRS & NILKA PROHIBIT ROTOR USE LANDING	
FIXED WINGS CANNOT LAND BELOW FERN LINE (TOO ROUGH)	
NIGHT OPT. TRAINING ABOVE 14K (SPECIAL PERMISSION ALLOWS THIS)	
NPS ADS 80 NPS ± / YR (LLAMA) OR ABOUT 20/HRS PER MONTH	
TUEL TRAINING OCCURS, DARYL NOT SURE OF MILITARY USAGE NPS	
CHUCK _____ IS AK. TROOPER W/ SEARCH & RESCUE COORDINATOR	
• VISITOR CTR. @ JONES-PETERSVILLE RD. (DAY USE ONLY)	
• TKA IS LOOKING AT A LOOP TO KEEP RVS OFF MAIN DRAG (BACK RTN IS ON 2ND)	

BOUGH. 206's .85's

LOL

REV 4/97 FORM 226

167651 Heliport
May 05, 2002

Author: Mark Mayo at ANCAV1
Date: 9/27/96 11:22 AM
Priority: Normal
Receipt Requested
TO: Chris Kepler
CC: Pat Beckley
CC: Janet George
Subject: Talkeetna Airport - Traffic Pattern Change

---------- Message Contents ----------

Chris;

As I mentioned earlier, I attended a meeting on Tuesday, September 24 in Talkeetna to discuss the Village Airstrip. The meeting was called by the Talkeetna Airman's Association following the issuance of a letter by BLM closing the Village Airstrip. I attended at FAA's request because of the impact the closure might have on the airport master plan DOT&PF is developing for Talkeetna. Patti Sullivan (FAA Airport Planner), Bill Cord (FAA Airspace Specialist), Carla Follett (FAA Realty), Martin Hansen (BLM), Bill Lloyd (BLM Realty) and Carol Gustafson (US Congressional Delegation - Wasilla Office), and Earl Korynta and Craig Campbell from USKH (Master Plan consultants) also attended. Robert Gurlach and Rob and Karen Holt attended for TAA.

Most of the meeting was focused on finding a way for the Talkeetna Airman's Association (TAA) to continue operation at the Village Airstrip. Various land transfer scenarios were discussed, but no clear solution was identified. If BLM follows a typical land disposal procedure, the process could take as long as 16 years with no guarantee that TAA would end up controlling the parcel. TAA is hopeful that Alaska's Congressional Delegation can intervene to assure the long term operation of the Village Airstrip.

In the course of the meeting I was asked whether DOT&PF would continue to pursue a change in the traffic pattern at the State airport. I told them that we had received a letter from FAA (Patti Sullivan's August 8 letter to you) that identified conditions required by FAA before the change could occur. I also said that DOT&PF probably would not agree to the requirement that DOT&PF enter into an agreement with TAA to allocate airspace over the State airport and Village Airstrip. I listed four concerns:

1) DOT&PF has no jurisdiction over airspace. DOT&PF would not monitor or enforce the agreement. A more appropriate mechanism to achieve the same end would be for FAA to have separate agreements with TAA and DOT&PF.
2) The required agreement could open DOT&PF to legal liability for other safety issues concerning the Village Airstrip not related to airspace but known to exist. If DOT&PF chose to become involved an agreement with TAA to mitigate one potentially dangerous situation (i.e. airspace), we might be faulted in court for not also dealing with all the other known problems at the airstrip.
3) FAA's requirement appeared to undercut BLM's efforts to shield themselves from liability. BLM's posture is that by issuing their closure letter, aircraft operations are no longer occurring on their property. By requiring the agreement, FAA is saying that operations are occurring and they are dangerous enough that DOT&PF needs to assist FAA in managing them.
4) An agreement with TAA would be ineffective because only a portion of the Village Airstrip is controlled by TAA. Other portions are owned by BLM and at least one private owner. To be completely effective, the agreement would have to be with all property owners. This would make BLM's position even more difficult.

At the meeting, Patti said that if FAA's requirements as described in the letter could not be met, permission to change the traffic pattern would not be granted. No compromise was offered.

You may want to consider answering Patti Sullivan's August 8 letter by outlining these concerns and suggesting that FAA grant the traffic pattern change but enter into an agreement with TAA themselves. Your airport manager in Talkeetna might make a copy of your response available to operators at the State airport. This would put the ball back into FAA's court while demonstrating your concern and

Post-it™ Fax Note 7671 | Date 12/06/01 | pages 6
To Tabor Lovett | From Don Carter
Co./Dept. FAA | Co. AMOT, Inc.
Phone # | Phone # 269-0610
Fax # 271-2851 | Fax #

responsiveness to the needs of operators at the State Airport.

;)

(2)

16765.1
Heliport

CH2MHILL TELEPHONE CONVERSATION RECORD

CALL TO Chris Kopka, DOT&PF M&O

PHONE NO. 269-0767

DATE 18-DEC-01

CALL FROM SOC

TIME 3:00 ☐ AM ☑ PM

MESSAGE TAKEN BY SOC

PROJECT NO. 167651

SUBJECT Talkeetna Airport M&O Costs

M&O costs for only Talkeetna Airport were $260,000 for FY '01 (July 2000 to June 2001)

- This cost does not include any highway work

CH2MHILL TELEPHONE CONVERSATION RECORD

CALL TO _____ PHONE NO. 745-2159

DATE 19-DEC-01

CALL FROM Kurt Devon TIME 10:00 ☒ AM ☐ PM

MESSAGE TAKEN BY Cinelli PROJECT NO. 167651

SUBJECT M+O costs for new heliport CTKA

- Kurt says highway M+O costs a/c $4000 per lane mile in Mat-Su Borough area
- 1 lane mile = 12' wide × 5280' long
- Airport M+O costs vary, small airports ⇒ 3X the expense of highways, large airports maybe 2X the cost of highways
- Plowing heliport is as follows
  1) Use truck to open road
  2) Drive truck back to shop
  3) Drive loader to heliport
  4) Open heliport with loader
  5) Return loader to shop
- Kurt mentioned that locating the heliport 20 miles from Talkeetna would place it outside of Steve Hanson's area and M+O would become the responsibility of either the Chulitna or Willow Stations.

CENTRAL REGION

DEMOGRAPHIC & COST DATA

Station TALKEETNA
Collo.Codes 25861043

HIGHWAY LANE MILES (By Road Category)

Route Name	# 35 -	ADT	Begin MP	End MP	IA pv'd	IA total	IIA pv'd	IIA total	IIB pv'd	IIB total	IIIA pv'd	IIIA total	IIIB pv'd	IIIB total
Talkeetna Spur	171000	?			38.7	38.7								
Comsat Road	171519	140									6.8	6.8		
Christensen Lk.	171519	?									0	2.5		
	Total	Miles			38.7	38.7					6.8	9.3		

Total Highway Lane Miles 48.0
Total Airport Lane Miles 7.2
Total Highway / Airport Lane Miles 55.2

COST PER HIGHWAY/AIRPORT LANE MILE $ 3,690
Lane Miles/Operator 55.2

AIRPORT LANE MILES

	Description	Ident. #	Enplane #'s	Certified pv'd	Certified total	Non-Certified pv'd	Non-Certified total
1	Talkeetna Airpor		?	0	0	7.2	7.2
2							
			Total Miles			7.2	7.2

Certificated Airports —0 Non-Certificated Airports—1

FY 97 Airport Contract Total $0.0

FACILITIES Type	#	Total Sq. Ft.	BRIDGES #	HARBORS #	State Op Yes	State Op No	PERSONNEL Allocated PFT #	Allocated PPT/S #	Filled PFT #	Filled PPT/S #
Heated	1	4,881	#	#	Yes	No	#	#	#	#
Unheated	1	240	0	0			1	0	1	0
Total	2	5,121								

DOT&PF VEHICLES (SEF)

LIGHT DUTY		HEAVY DUTY								
Trucks	Other	Dumps	Graders	Loaders	Dozers	Backhoes	Sanders	Snwplows	Brooms	Total
2	0	3	3	2	0	0	1	1	0	12

FY 96 ACTUAL EXPENDITURES ($1,000's)

Component	(7100) Personnel	(72000) Travel	(73000) Contractual Utilities	(73000) SEF Oper.	(73000) SEF Replace	(74000) Commodities	(75000) Equipment	Totals
HIGHWAYS	-1,324	0	0	0	0	0	0	-1,324
AIRPORTS	75,729	1,232	13,641	73,538	30,362	9,178	0	203,680
TOTALS	74,405	1,232	13,641	73,538	30,362	9,178	0	202,356

CH2MHILL TELEPHONE CONVERSATION RECORD

CALL TO Nancy, TKA FSS Specialist — PHONE NO. 733-2277

DATE 1-JULY-02

CALL FROM SOC — TIME 3:10 ☐ AM ☒ PM

MESSAGE TAKEN BY SOC — PROJECT NO. 167651 Heliport

SUBJECT Traffic Patterns near TKA

I asked Nancy about standard traffic patterns @ TKA. She raised the following points:

1) Generally Christensen Lake traffic stays to the east of the lake
2) Talkeetna traffic is present on the east and west sides of the runway
3) Conflicts between Christensen Lake and Talkeetna traffic are rare due to the low volume of traffic on Christensen Lake and pilots natural vertical separation
4) Pilots on the Village Strip tend to remain to the west of the Village Strip to avoid TKA traffic, but when they do fly to the west of the strip they are typically below TKA traffic, avoiding conflicts.

- Steve

167651 Heliport
01-JULY-02

MT. MCKINLEY, SOUTH PEAK
ATTEMPTS, SUMMITS, PERCENTAGES
1903-2001

Year	# of Attempts	Summit No	Summit Yes	Summit %	Year	# of Attempts	Summit No	Summit Yes	Summit %
1903	8	8		0	1973	203	95	108	53
1910	15	15		0	1974	282	143	139	49
1912	7	7		0	1975	362	231	131	36
1913	4	0	4	100	1976	508	169	339	67
1932	9	5	4	44	1977	360	76	284	79
1942	8	1	7	88	1978	459	189	270	59
1947	14	4	10	71	1979	533	182	351	66
1948	3	0	3	100	1980	659	376	283	43
1951	8	0	8	100	1981	612	291	321	52
1952	29	19	10	34	1982	696	386	310	45
1953	9	6	3	33	1983	709	235	474	67
1954	13	0	13	100	1984	695	371	324	47
1955	4	4	0	0	1985	645	324	321	50
1956	18	18	0	0	1986	755	349	406	54
1957	8	8	0	0	1987	817	566	251	31
1958	12	2	10	83	1988	916	365	551	60
1959	8	4	4	50	1989	1009	492	517	51
1960	24	1	23	96	1990	998	425	573	57
1961	31	11	20	65	1991	935	378	557	60
1962	40	15	25	63	1992	1070	555	515	48
1963	50	21	29	58	1993	1108	438	670	60
1964	37	12	25	68	1994	1277	575	702	55
1965	31	28	3	10	1995	1220	697	523	43
1966	22	15	7	32	1996	1148	659	489	43
1967	83	20	63	76	1997	1110	548	561	51
1968	40	10	30	75	1998	1166	746	420	36
1969	71	22	49	69	1999	1183	675	508	43
1970	124	52	72	58	2000	1209	579	630	52
1971	163	115	48	29	2001	1305	533	772	59
1972	181	101	80	44					
					TOTALS	25,023	12,172	12,850	51%

Attn:
Nicole

OVERALLCLIMBERS9/19/2001

CH2MHILL

MEETING NOTES

PROJECT NUMBER: _____ SHEET 1 OF 1

NOTES ISSUED BY: _____

REGION: _____ DATE: _____

SUBJECT: AIRSPACE AGREEMENT MTG.

MEETING DATE: 5-3-02 2PM LOCATION: CNZY

ATTENDEES:

JOHN LOVETT / FAA

CHARLIE / FAA

* RUTH GLACIER IS WHERE ERA GOES

NOTES BY: DRC

TOPICS DISCUSSED	ACTION/NOTES
FLT ON ROUTE TO FBX. FUEL STOP	
TARGET TO HAVE 3 AT ONCE AT LEAST 1 FOR MTN. RESCUE	
TYP. ARMY PILOTS WILL NOT TAXI DOWN & PARK. ALL WE CAN DO IS LABEL "H", LIGHT IT & DESCRIBE IN SUPPLEMENT	
• CHARLIE REC'S MOVING PAD (UNLESS IT IS A DESIGN CRITERIA) ON ALT C	
• NOT REALISTIC TO KEEP HC'S ≥ 1000 AGL (THEY WILL BE LOW) BUT JUST ENFORCE USE OF 36 SOUTH	
- JANET CLARK - DID UPGRADE TO FSDO	
- ULTRALIGHTS ARE OVER HC'S	
• NO FATAL FLAWS (PER CHARLIE), BUT HE NOTED THAT POSS. OF COLLISION ON FINAL APPROACH W/ HC CIRCLING AT RW 36 APPROACH.	
• 18 FT. HAND OK BUT GO TO 1000' AGL FOR FIXED WING	
- PUBLISH SEPARATION & ALTITUDES - MORE INFO. IS BETTER PER CHARLIE	
• CHRISTIANSON LK - VERBAGE IN AIRPORT FACIL. DIRECTORY WAS SOME VERBAGE	
- KEEP FIXED WING TRAFFIC "STRAIGHT" AND OVER COMMUNITY	
OPTION - CAN COME FROM NORTH & LOOP AROUND BY ALT. "E"	
- 358 elev (1400 MSL FOR FIXED WING)	

REV 11/01 FORM 228

10'1651 Hc/pol-t
May 05, 2002

DRAFT
From John

May 3,2002

Mr. Chris Kepler, P.E.
Director, Operations and Maintenance
State of Alaska DOTPF
PO Box 196900
Anchorage, Alaska 99519-6900

Dear Mr. Kepler:

TALKEETNA AIRSPACE

On Friday April 26, 2002 members of Air Traffic Division AAL 530, the State of Alaska DOTPF, and the Airports Division met to review and discuss the conflicting airspace between the Talkeetna Airport and the Talkteena Village Airstrip. After review the past history and correspondence dating back to 1995 it was decided to rewrite the Talkeetna Airport Airspace Case #96-AAL-002NRA. (See attached original case study)

Since the issuance of the original airspace study the Talkeetna Airmen's Association, Inc on November 10, 1998 has agreed with the operational conditions and airspace separation and responsibilities outlined in the original airspace letter. (See attached letter).

The remaining action to be completed by the State of Alaska DOTPF is to comply with the following conditions:

1. Change the Talkeetna Airport pattern altitude to 1000 feet Above Ground Level (AGL) and publish it in the Airport Remarks section of the Alaska Supplement with the following restrictions:
    a) Aircraft departing runway 18 should climb straight ahead to at least 1000 feet AGL before turning westbound to avoid Village Airstrip traffic operating at 500 AGL or less.
    b) Aircraft arriving runway 36 should maintain at least 1000 feet AGL until turning final to avoid Village Airstrip traffic operating at 500 feet AGL or less.

2. Add the following comment to the Airport Remarks Section of the Alaska Supplement: " Common Traffic Advisory Frequency (CTAF) procedures are highly recommended due to underlying traffic pattern."

3. Install appropriate Traffic Pattern Indicators.

4. Provide users with a bulletin outlining changes and the need for compliance with the pattern altitudes and conditions.

Please review the above conditions and if you concur please submit a schedule when you will update the 5010 Airport Master Record and submit to the FAA for publication. With the future development and design of a new helicopter landing area and apron construction in 2003 additional airspace analysis will be required. We look forward to working closely with you and your staff.

If you have any further questions, please contact me at 271-5446.

Sincerely,

John T. Lovett, P.E.
Planning and Programming Branch
Airports Division

Talkeetna Airport Improvements, Phase II

State Project No. 54660/ Federal Project No. 3-02-0287-0402

Project Update

May 2002

Background

The Alaska Department of Transportation and Public Facilities (ADOT&PF) has undertaken the Talkeetna Airport Improvements, Phase II project to meet aviation demands identified in the Talkeetna Airport Master Plan. Increasing air traffic at Talkeetna has led to a need for more commercial lease lots and aircraft parking, general aviation aircraft parking, and transient aircraft parking. The expansion of the commercial apron has made it necessary to relocate the existing helicopter landing area to preserve aviation safety. A Hydrology and Hydraulics (H&H) Study of the Talkeetna River is being undertaken due to the airport's location within the 100-year floodplain.

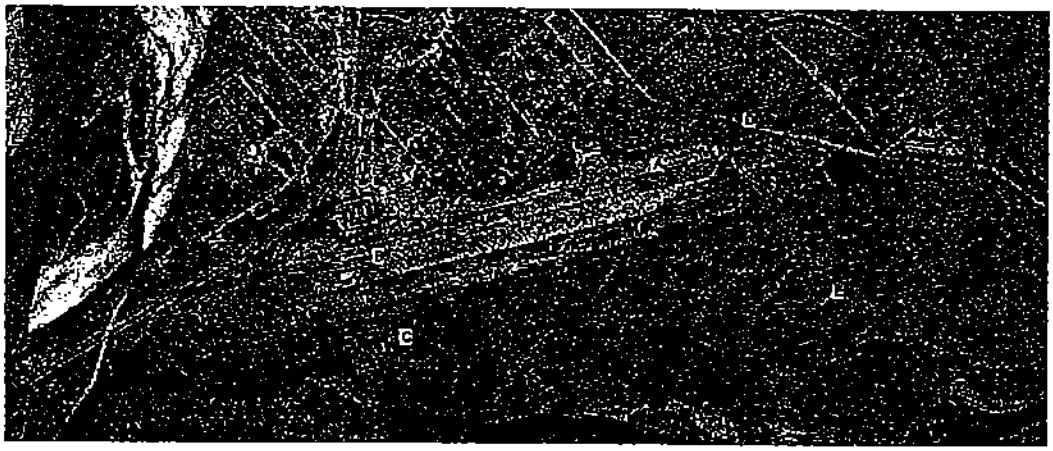
Talkeetna Airport History

What is now Talkeetna Airport was first constructed as a gravel runway by the U.S. Government in 1941. The State of Alaska assumed ownership of the airport in 1965, and it is now managed by the ADOT&PF. In 1981, a new parking apron (now the existing commercial apron) was constructed and the existing runway was r[illegible]faced with gravel. During 1987 ADO[illegible]PF raised and paved the runway, taxiway, and existing commercial apron. Runway lights were also included in the project. In 1996, ADOT&PF constructed the parallel taxiway and the new Maintenance & Operations building. The present Flight Service Station was constructed in 1997.

Current Work

Design Engineering: The airport improvements outlined above and presented at the first public meeting in October 2001 have been designed to a 35% level. Design will resume after the H&H Study is complete. It has been determined that it is not feasible to relocate the existing Flight Service Station as previously proposed.

Heliport Relocation: A draft Heliport Relocation Study (HRS) is on-going. The study considers five on-airport locations delineated as sites A through E below, a heliport at the VOR/DME site (about 1.6 miles south of the airport), and an "off-airport" alternative to establish a new location for helicopter operations. The draft HRS outlining a preferred alternative will be available for public review early this summer. The draft HRS will include a noise analysis to determine the noise impacts of the heliport and other aircraft operations on the community. The project team will begin the noise study early this spring/summer taking field measurements to calibrate the noise model.



Hydrology and Hydraulics: Our team has analyzed the flow of water in the Talkeetna and Susitna Rivers during the 100-year flood. The data used in the analysis is based on actual stream gauge data, a very reliable method. Our results indicate that the flow during the 100-year flood is 91,500 cubic feet per second (cfs) compared to an average annual mean flow of 4,063 cfs. The next step in the H&H Study is to finalize a contour map of the Talkeetna area and map water surface elevations during a 100-year flood on the airport property. This work will lead to the identification of flood mitigation alternatives and the selection of a preferred mitigation alternative. This H&H information is scheduled to be available for review later in the summer.

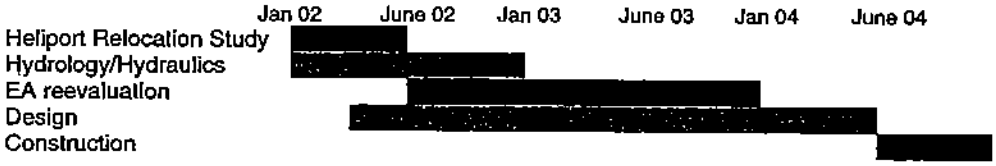
EA Reevaluation: The Environmental Assessment (EA) Reevaluation will begin this summer. The reevaluation will include assessing impacts from the proposed heliport relocation and proposed flood mitigation alternatives. It will also include detailed wetland investigations near Twister Creek. An agency work session originally scheduled for February 19, 2002, was postponed; resource agencies considered it premature without the additional field data and analysis to support design and EA reevaluation efforts. As requested by the agencies, the work session will be rescheduled when the supplementary information has been generated.

How to Participate

Keeping you informed about this project is important. You can always contact the project staff listed below by mail, email or phone to get on our mail list, discuss the project, give comments or ask questions. We will be scheduling a public meeting in the summer/early fall.

Project Schedule

The project was originally scheduled for construction in the summer of 2003, but due to delays with the H&H Study, it has been postponed until the summer of 2004. The current schedule is as follows:



Contact Information

Project Manager, Dave Coolidge, P.E. or
Linda Cyra-Korsgaard, Public Involvement Coordinator
CH2M HILL, 301 W. Northern Lights Blvd. Suite 601
Anchorage, AK 99503.
Phone: (907) 276-6833 x 205
Email: lcyra@ch2m.com

Project Manager, Don Baxter, P.E.
ADOT&PF, 4111 Aviation Ave.
Anchorage, AK 99502.
Phone: (907) 269-0610
Email: don_baxter@dot.state.ak.us

167651
Public Inc.

CH2MHILL

Linda Cyra-Korsgaard
CH2M HILL
301 W. Northern Lights Blvd. Suite 601
Anchorage, AK 99503

PRSRT STD
US Postage
PAID
Anchorage, AK
Permit #537

Talkeetna Airport Improvements, Phase II

STATE-PI/ Heliport

MEMORANDUM

STATE OF ALASKA

Department of Transportation and Public Facilities
Statewide Design & Engineering Services
Preliminary Design & Environmental

To: Don Baxter, PE
Aviation Design

Date: June17, 2002
File No.: 54660
Phone No.: 269-0531

From: Carol Jo Sanner CJS
Permits Officer

Subject: Talkeetna Airport
Phase II Improvements
Field Review, Heliport Site

On June 12, 2002, I visited Talkeetna Airport to inspect the proposed heliport site on the southeast side of the airport. The layout was recently revised due to objections by resource agencies for its wetlands involvement. Accompanying me on the field trip were Deb Moore, Ch2M-Hill; and Skip Joy, Corps of Engineers. All environmental permitting agencies were invited. Two others Jeff Davis of ADF&G and Sandy Garley, Mast-Su Borough Planner, expressed interest in participating in the filed trip, but we were unable to connect with them.

We had an aerial photo plot with overlay of the 5 proposed heliport layouts, but the main one of concern for wetlands effects was the one on the southeast side of the runway. We walked the area starting at the southwest gravel apron, along the route shown on the attached photo.

Summary of Observations:
In essence, the revised heliport footprint along the SE side of the runway is wetland with standing water or saturated soils along the entire access road route and proposed parking area. The proposed helipad area and safety area has small pockets of upland, but the relative amount of uplands is very minor compared to the amount of wetlands and not worth subtracting from the total fill footprint.

The **standing water wetlands** have aquatic emergents (sedges, horstetail) and shrub-scrub (willow, sweet gale). Water depth was to approximately 12 inches within dense vegetation. Open water areas were not visible, nor evidence of defined drainage channels, except those constructed ditches along the toe of the runway. The ditches diffuse into the low topography of the wetlands. Although it appears there was higher standing water elevations during spring break up, this was probably overlying frozen ground.

The **saturated sites** of peat/ *Sphagmun* also have prickly rose, false *Spirea* and ground cover of nagoonberry. There was no evidence of overland flow towards the south, nor perennial connections to either Twister Creek nor any other drainages visible on the aerial photo.

The **small pockets of upland** consists of a linear berm that parallels the runway comprised of disposed material, probably from the original runway construction. We dug one sample hole (near helipad site) revealed moist, silty- sandy soils (Color: 7.5 YR, 4/4) and some gravel on the surface. Although oxidation exists in the soil, it is not a hydric soil. There is no evidence of inundation on these higher spots. Vegetation in these areas consists of willow, birch, aspen, twisted stalk, red berried elder, bluejoint grass, fireweed, with ground cover of dogwood and nagoon berry. The topographic difference between the "uplands" and saturated wetlands is less than 2 ft. There is evidence of winter moose browsing. I found a shed antler, indicating moose use through late winter. I also observed recent moose tracks through the boggy area south of the runway.

Recommendations:
Based on our ground truthing, the revised heliport ("horizontal layout") is all still in wetlands, although it does somewhat reduce the length of the access road and eliminates any defined drainage crossings.
This layout would require an individual permit form the Corps of Engineers, but would not require a Title 16 for fish habitat impacts. In order to satisfy the purpose and need test for the COE permit, we must show there are no prudent or feasible upland alternatives that avoid fill in wetlands and that we have minimized the footprint of the fill. Furthermore, if this is the preferred alternative, the EA should include a wetlands mitigation plan that provides compensation for lost habitat and other wetlands functions and values. A possible plan might include any or all of the following:

1. Sufficient drainage culverts to maintain recharge of the wetlands towards the south.
2. Construction of sinuous channels connecting to Twister Creek or is tributaries so as to provide additional salmonid rearing habitat.
3. Excavation of unused fill areas on airport property or offsite to restore wetlands functions.

We should discuss this further to determine options and alternatives before proceeding with the NEPA document.

Cc: Laurie Mulcahy, Environmental Team Leader
Skip Joy, DA, COE, Regulatory
Deb Moore, CH2M-Hill
Jeff Davis, ADF&G

Cinelli, Steve /ANC

From: john.lovett@faa.gov
Sent: November 13, 2002 2:06 PM
To: Don_Baxter@dot.state.ak.us
Cc: john.lovett@faa.gov; stephen.powell@faa.gov
Subject: TKA

Don-
Please read this and tell me if you want me to write this to you in a letter.

The State of Alaska DOTPF has received three AIP grants for airport improvements at Talkeetna in 1986, 1995, and 1996 for a total of $4,456,611.00. With each AIP grant there are 37 grant assurances that the State agrees to comply with. More specifically, Airport Grant Assurance No.22 states:

Economic Nondiscrimination.

a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.

Also, in FAA Order 5190.6A Airport Compliance Requirements it states on page 20 section 4-13:

a.) The owner of any airport developed with Federal grant assistance is required to operate it for the use and benefit of the public and to make it available to all types, kinds , and classes of aeronautical activity on fair and reasonable terms without unjust discrimination.

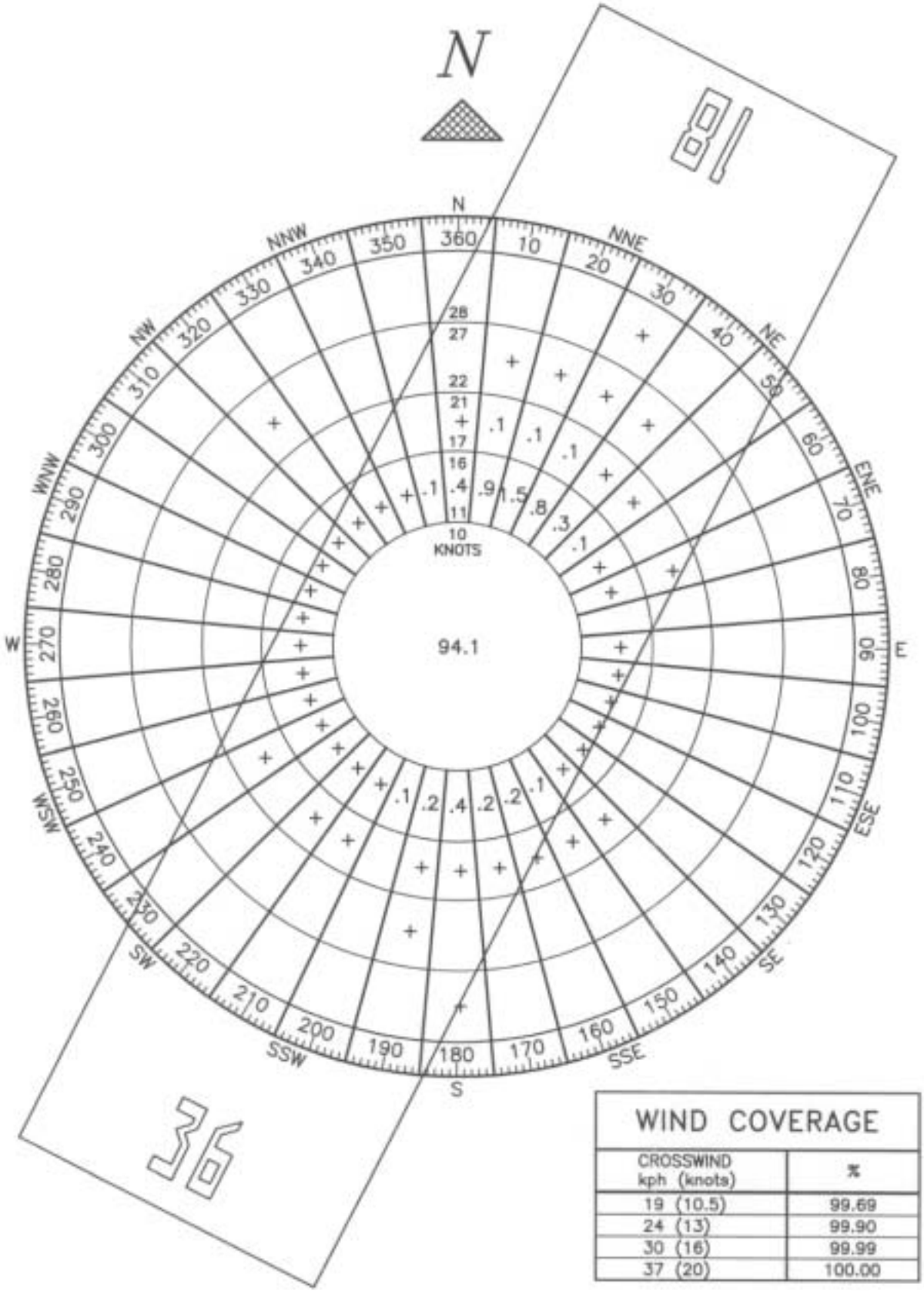
In other words, the State of Alaska DOTPF as the owner and operator of the Talkeetna Airport that has received federal AIP grants could not close this public airport to helicopter operations. Helicopter operations have been taking place in Takeetna for over 30 years and is a legitimate user of this airport. To prevent helicopters for using this airport would be in violation of the grant assurances.

Copies fo the grant assurances can be found of the FAA web page: http://www2.faa.gov/arp/aal/assrnap.pdf

John T. Lovett, P.E.
Capacity Airport Planner
Airports Division, Alaska Region
(907) 271-5446

Appendix B
Talkeetna Airport Windrose

Talkeetna Airport Windrose



WIND COVERAGE	
CROSSWIND kph (knots)	%
19 (10.5)	99.69
24 (13)	99.90
30 (16)	99.99
37 (20)	100.00

SOURCE: ALASKA STATE CLIMATE CENTER, E.N.R.I. UNIVERSITY OF ALASKA ANCHORAGE
STATION: TKA, AK #26528
PERIOD: 12/91 – 11/99, 45,496 OBS

CH2MHILL

Appendix C
Noise Study

Contents

Figure

Abbreviations

ADOT&PF	Alaska Department of Transportation and Public Facilities
B&K	Bruel & Kjaer
dB	decibel or decibels
DNL	Day-Night Noise Level
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FICAN	Federal Interagency Committee on Aviation Noise
FICON	Federal Interagency Committee on Noise
Hz	hertz
INM	Integrated Noise Model
LDL	Larson-Davis Laboratories
L_{eq}	Equivalent Sound Level
L_{max}	maximum noise level
psi	pounds per square inch
SAE	Society of Automotive Engineers
SEL	sound exposure level
TKA	Talkeetna Airport
μPa	micropascals

Executive Summary

Following is a synopsis of the findings of the noise study conducted for the proposed improvements at Talkeetna Airport (TKA).

- Existing noise exposure due to aircraft operations at TKA does not result in noise levels exceeding the Federal Aviation Administration (FAA) land-use compatibility threshold of Day-Night Average Noise Level (DNL) 65 decibels (dB). Existing peak-season DNLs are approximately 63 dB within the Denali Subdivision, which is the nearest residential area west of the airport. At a limited number of residences south of the airport and directly under the departure flight path, existing noise exposure approaches but does not exceed DNL 65 dB. At other community locations in Talkeetna, aircraft noise exposure is well below the compatibility threshold.

- At communities located in the vicinity of the Alaska Railroad Corporation tracks, the highest noise levels are by far due to train movements and the use of warning horns by trains. Train movements are less frequent than aircraft flight activities and therefore do not contribute substantially to overall DNL values at most locations. At certain locations and during certain hours, however, train movements are the dominant sources of noise. For instance, at residential locations south of the airport, train noise combined with noise from aircraft flights results in overall noise levels exceeding the DNL 65 dB criterion. Vehicular traffic movements and other intermittent human activities also contribute slightly to overall noise exposure at most community locations.

- Future (2015) noise exposure for all project alternatives would remain below the DNL 65 dB criterion at most community locations in Talkeetna. However, at the exterior locations of a limited number of residential properties within the Denali Subdivision, peak-season noise exposure resulting from fixed wing aircraft taxiing and departures would result in DNL values slightly above 65 dB. Heliport alternatives will not affect the noise levels in these areas. If the airport grows as predicted, mitigation measures should be considered to keep airport noise exposure in this area within acceptable limits. At all other locations, future airport noise exposure under the No Action Alternative and the two heliport alternatives studied would remain below DNL 65 dB.

- Aircraft flights to and from TKA have minimal effects on speech interference at the exteriors of some residential areas. The potential for speech interference at some locations will continue in the future with increased frequency; however, such interference is not expected to be significant: Aircraft noise levels would not interfere with normal daily activities during the majority of time.

SECTION 1

Noise

1.1 Introduction

The Alaska Department of Transportation and Public Facilities (ADOT&PF) has proposed airport improvements at Talkeetna Airport (TKA) in order to accommodate existing demand and future growth of aircraft operations at the airport. Increased aircraft flight activities at TKA would potentially result in increased noise exposure within the community of Talkeetna and, in general, at noise-sensitive locations in the vicinity of the airport and proximate to aircraft flight paths.

This report describes the methods and findings of the analysis conducted to evaluate potential aircraft noise impacts within the nearby community resulting from operations at TKA.

1.2 Fundamentals of Noise

Noise is often described as unwanted sound, and thus is a subjective reaction to the physical phenomenon of sound. Sound is variations in air pressure that the ear can detect. The minimum pressure which the human ear can detect is about 2.9×10^{-9} pounds per square inch (psi), or 20 micropascals (μPa). Standard atmospheric pressure is 14.7 psi, or 101,300 pascals. The ear responds to pressure changes over a range of 10^{14} to 1. This is roughly equivalent to the range of 1 second as compared to 3.2 million years, or 1 square yard compared to the entire surface area of the earth. To deal with the extreme range of pressures which the ear can detect, researchers express the amount of acoustical energy of a sound by comparing the measured sound pressure to a reference pressure, then taking the logarithm (base 10) of the square of that number.

The original unit of sound measurement, named the *bel* after Alexander Graham Bell, corresponded well to human hearing characteristics if it was divided by a factor of 10. This unit, 1/10 of a *bel*, is called the decibel (dB).

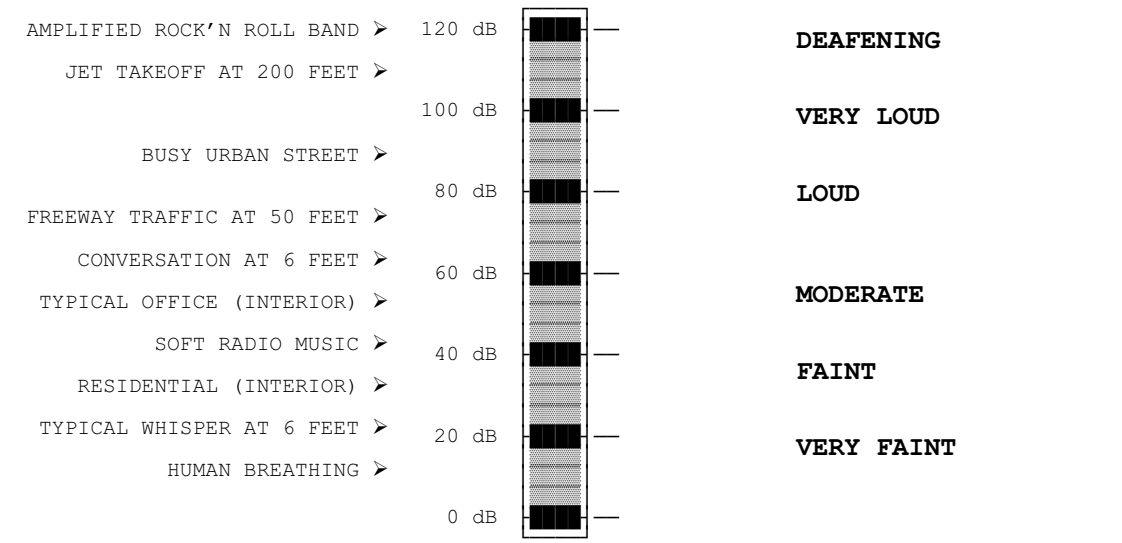
The frequency, or pitch, of a sound is also a factor in how we hear the sound. The ear responds to pressure variations in the air from about 20 to about 20,000 times per second. The frequency of the variations is described in terms of hertz (Hz), formerly called cycles per second. The ear does not respond equally to all frequencies. For example, we do not hear very low frequency sounds as well as we hear higher frequency sounds, nor do we hear high frequency sounds very well. This difference in perceived loudness varies with the sound pressure level of the sound. In general, the maximum sensitivity of the ear occurs at frequencies between about 500 and 8,000 Hz.

To compensate for the fact that the ear is not as sensitive at some frequencies and sound pressure levels as at others, a number of frequency weighting schemes have been developed. The weightings are accomplished using electrical filters, and some have been named the A, B,

C, D, E, and F weighting factors. The A-weighting scheme is most commonly used for environmental noise assessment, as sound pressure levels measured using that filter correlate well with community response to noise sources such as aircraft and traffic. A-weighting deemphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels as they correlate well with public reaction to noise.

Table 1 shows typical A-weighted sound levels and public reaction to common environmental noise sources.

TABLE 1
Examples of Noise Levels



Most environmental noise sources produce varying amounts of noise over time, so the measured sound levels also vary. For example, noise produced during an aircraft overflight will vary from relatively quiet background levels before the overflight to a maximum value when the aircraft passes overhead, then returning down to background levels as the aircraft leaves the observer's vicinity. This variation in sound levels over time requires some simplifying methods to reduce the complexity of the measured information.

Variations in sound levels may be addressed by statistical methods. The simplest of these are the "maximum" (L_{max}) and "minimum" (L_{min}) noise levels, which are the highest and lowest levels observed.

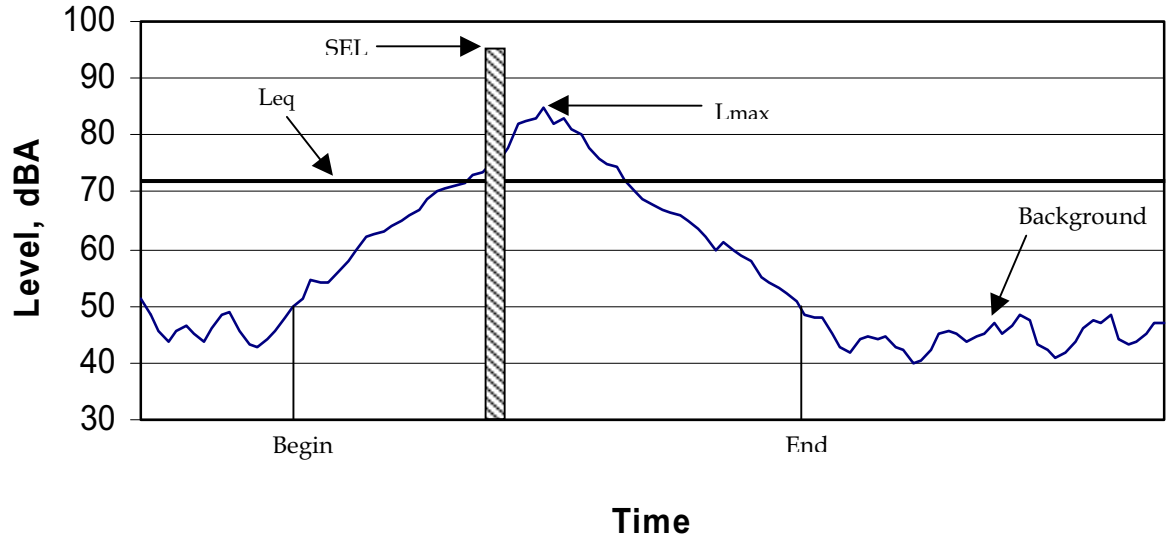
The average sound level during a sample is a valuable statistical descriptor. Because people tend to react to the acoustical energy received during noise exposures, the average sound level is calculated from the total acoustical energy measured during the sample period. The energy-

average sound level, called the Equivalent Sound Level or L_{eq}, can be manually calculated from a number of sound level samples but is usually read directly from an integrating sound level meter. The L_{eq} may be calculated for any sound level sample period and most commonly refers to the average sound level during a 1-hour period.

For aircraft noise events, the exposure received during a noise event is expressed as the Sound Exposure Level (SEL). The SEL represents the total amount of acoustical energy measured during a noise event as though it occurred in a 1-second period. In general terms, the L_{max} describes how loud the noise event was for a moment, and the SEL describes how loud the entire noise event was perceived to be. The SEL incorporates the concept of "How loud was it?" with "How long was it loud?"

Figure 1 is a graphical depiction of a single aircraft noise event and the acoustical metrics used to measure noise levels from the aircraft. Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in dB.

FIGURE 1
Noise Metrics for a Typical Aircraft Noise Event



The Day-Night Noise Level (DNL) is a noise index that accounts for the greater annoyance caused by noise during the nighttime hours (10 p.m. to 7 a.m.). DNL values are calculated by averaging the hourly equivalent sound level (L_{eq}) for a 24-hour period after applying a 10-dB penalty to nighttime L_{eq} values. The 10-dB penalty reflects the increased sensitivity to noise during nighttime hours. DNL has been adopted by most federal agencies.

1.3 Noise Impact Criteria and Guidelines

The principal criterion used to determine the level of significance of noise exposure, due to the proposed action at noise-sensitive areas potentially affected, is defined by the Federal Aviation Administration (FAA). The FAA has established a land-use compatibility criterion of a DNL of 65 dB. The FAA documents establishing this noise criterion include Order 1050.1D, *Policies and Procedures for Considering Environmental Impacts*; Order 5050.4A, *Airport Environmental Handbook*; and Federal Aviation Regulations (FAR) Part 150, *Airport Noise Compatibility Planning*.

DNL 65 dB is the threshold of incompatibility for residential and other noise-sensitive land uses, such as schools, hospitals, and religious facilities, located in the vicinity of civilian airports. However, a number of other guidelines are included in this report to provide discussions of noise-related issues which are typically of potential concern to the public. Specifically, potential aircraft noise effects on outdoor speech communication are addressed through this evaluation.

DNL is the community noise metric recommended by the U.S. Environmental Protection Agency (EPA) and has been adopted by most federal agencies (Federal Interagency Committee on Noise [FICON], 1992). It has been well established that DNL correlates well with community response to noise (Schultz, 1978; Finegold, 1994). DNL is a noise index that accounts for the greater annoyance caused by noise during the nighttime hours (10 p.m. to 7 a.m.). DNL values are calculated by averaging the hourly equivalent sound level (L_{eq}) for a 24-hour period after applying a 10-dB penalty to nighttime L_{eq} values. The 10-dB penalty reflects the increased sensitivity to noise during nighttime hours.

1.3.1 Other Federal Agencies

Other federal agencies, including the various military branches (U.S. Air Force, U.S. Navy, and U.S. Army), the U.S. Department of Housing and Urban Development, and the U.S. Department of Veterans Affairs, also apply the same criterion level of DNL 65 dB to residential and other noise-sensitive areas.

Pursuant to the Noise Control Act of 1972, the EPA established guidelines for noise levels "required to protect public health and welfare with an adequate margin of safety" (EPA, 1974). In its Levels Document (EPA, 1974), EPA determined that a yearly average day-night sound level of 45 dB would permit adequate speech communication in the home. The EPA recommends a noise level of DNL 55 dB or below to avoid activity interference and annoyance in outdoor areas of residential locations. These levels also apply to hospitals and educational facilities. However, the EPA guidelines do not constitute a standard, specification, or regulation**.**

1.3.2 Change in Noise Exposure

To aid in the understanding of potential project noise impacts outside of the U.S. Air Force criteria, it is important to understand the human perception of loudness in terms of changes in noise exposure. Table 2 describes the degree of noise increase in terms of human perception of loudness.

TABLE 2
Noise Level Increase and Corresponding Human Perception of Loudness

Noise Level Increase (dB)	Human Perception of Loudness
< 3	Not perceptible
3	Barely perceptible change
5	Definite noticeable change
10	2 times as loud
20	4 times as loud

With respect to DNL, the FICON found that there are no new descriptors or metrics of sufficient scientific standing to substitute for the present DNL cumulative noise exposure metric. It further recommended continuing the use of the DNL metric as the principal means for describing long-term noise exposure of civil and military aircraft operations. The FICON reaffirmed the methodology employing DNL as the noise exposure metric and appropriate dose-response relationships to determine community noise impacts.

Based on these findings, the FICON supported agency discretion in the use of supplemental noise analysis. It also recommended that further analysis should be conducted of noise-sensitive areas between DNL 60 to 65 dB having an increase of 3 dB or more if screening analysis shows that noise-sensitive areas at or above DNL 65 dB will have an increase of DNL 1.5 dB or more. The FICON decided not to recommend evaluation of aviation noise impact below DNL 60 dB because public health and welfare effects below that level have not been established (FICON, 1992).

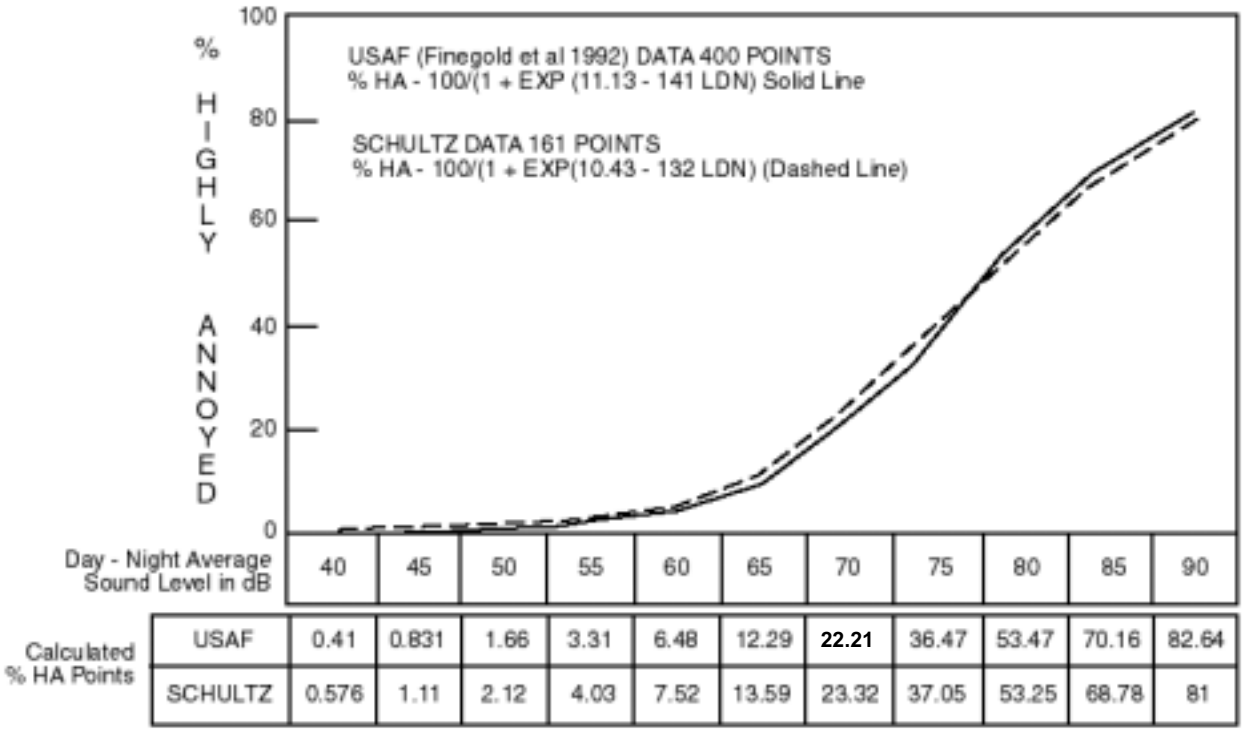
1.4 Noise Effects

1.4.1 Annoyance

Studies of community annoyance from numerous types of environmental noise show that DNL (or L_{dn}) is the best measure of impact. Schultz (1978) showed a consistent relationship between DNL and annoyance. This relationship, referred to as the "Schultz curve," has been reaffirmed and updated over the years (Fidell et al., 1991; Finegold, 1994). Figure 2 shows the current version of the Schultz curve.

As previously stated, the EPA identified a DNL of 55 dB or less as the threshold below which adverse noise impacts are not expected (EPA, 1972). Figure 2 shows that this is a region where a small percentage of people are highly annoyed. DNL of 65 dB is widely accepted as a level above which significant adverse impact should be expected (FICON, 1992). Figure 2 indicates that for 64-dB sound levels approximately 15 percent of people are highly annoyed at that level.

FIGURE 2: COMMUNITY RESPONSE TO NOISE



Day - Night Average Sound Level in dB	40	45	50	55	60	65	70	75	80	85	90
Calculated % HA Points: USAF	0.41	0.831	1.66	3.31	6.48	12.29	**22.21**	36.47	53.47	70.16	82.64
Calculated % HA Points: SCHULTZ	0.576	1.11	2.12	4.03	7.52	13.59	23.32	37.05	53.25	68.78	81

Source: FICON, 1992.

1.4.2 Speech Interference

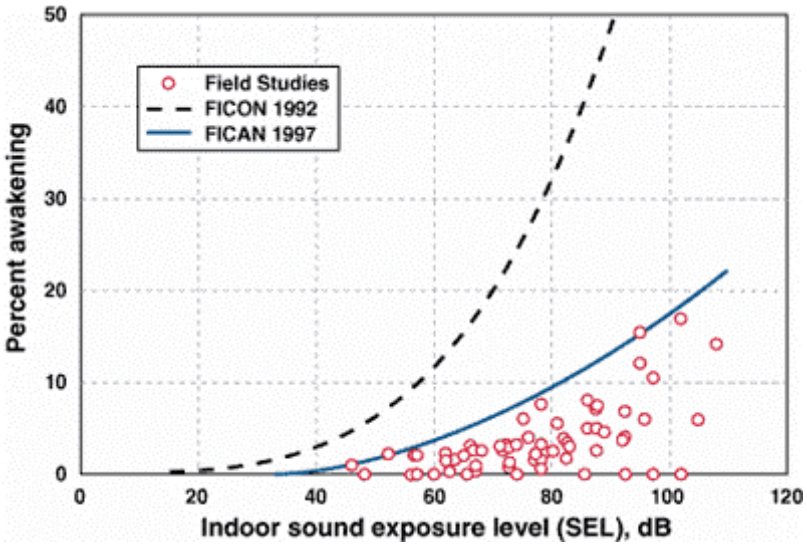
Conversational speech is in the 60- to 65-dB range, and interference with this can occur when noise enters or exceeds this range. Speech interference is one of the primary causes of annoyance. The Schultz curve incorporates the aggregate effect of speech interference on noise impact.

1.4.3 Sleep Interference

Sleep interference is commonly believed to represent a significant noise impact. The 10-dB nighttime penalty in DNL is based primarily on sleep interference. Recent studies, however, show that sleep interference due to noise is much less than had been previously believed (Pearsons, 1989; Ollerhead, 1992).

The Federal Interagency Committee on Aviation Noise (FICAN) has evaluated the data and conclusions from a number of field studies related to sleep disturbance due to noise from aircraft events (FICAN, 1997). The "FICAN 1997" curve shown in Figure 3 predicts a conservative dose-response relationship for the combined field data. The curve represents the upper limit of the observed field data, and should be interpreted as predicting the "maximum percent of the exposed population expected to be behaviorally awakened," or the "maximum % awakened" for a given residential population.

FIGURE 3 DOSE-RESPONSE SLEEP DISTURBANCE RELATIONSHIP



Source: FICAN, 1997.

1.4.4 Hearing Loss

Federal Occupational Safety and Health Administration guidelines (Title 29, Section 1910.95 of the *Code of Federal Regulations*) specify maximum noise levels to which workers may be exposed on a regular basis without hearing protection. Pertinent limits are A-weighted noise levels of 85 dB for up to 8 hours and 115 dB for up to 15 minutes per day. Exceeding these levels on a daily basis over a working career is likely to lead to hearing impairment. These levels are conservative for evaluating potential adverse effects from occasional noise events.

1.4.5 Health

Nonauditory effects of long-term noise exposure, where noise may act as a risk factor, have never been found at levels below federal guidelines established to protect against hearing loss. Most studies attempting to clarify such health effects found that noise exposure levels established for hearing protection would also protect against nonauditory health effects (von Gierke, 1990). There are some studies in the literature that claim adverse effects at lower levels, but these results have generally not been reproducible.

Table 3 is adopted from the *Federal Agency Review of Selected Airport Noise Analysis Issues* (FICON, 1992). The table is a general summary of the effects of noise on people based on scientific studies to date.

TABLE 3
Effects of Noise on People (Residential Land Uses Only)

Effects[a] (Day-Night Average Sound Level in Decibels)	Hearing Loss (Qualitative Description)	Annoyance[b] (% of Population Highly Annoyed)[c]	Average Community Reaction[d]	General Community Attitude Towards Land Use Area
75 and above	May begin to occur	37%	Very severe	Noise is likely to be the most important of all adverse aspects of the community environment.
70	Will not be likely	22%	Severe	Noise is one of the most important adverse aspects of the community environment.
65	Will not occur	12%	Significant	Noise is one of the important adverse aspects of the community environment.
60	Will not occur	7%	Moderate to slight	Noise may be considered an adverse aspect of the community environment.
55 and below	Will not occur	3%	Moderate to slight	Noise considered no more important than various other environmental factors.

[a] All data are drawn from National Academy of Science 1977 report Guidelines for Preparing Environmental Impact Statements on Noise, Report of Working Group 69 on Evaluation of Environmental Impact of Noise.

[b] A summary measure of the general adverse reaction of people to living in noisy environments that cause speech interference; sleep disturbance; desire for tranquil environment; and the inability to use the telephone, radio or television satisfactorily.

[c] The percentages of people reporting annoyance to lesser extents are higher in each case. An unknown small percentage of people will report being “highly annoyed” even in the quietest surroundings. One reason is the difficulty all people have in integrating annoyance over a very long time. USAF Update with 400 points (Finegold et al., 1992).

[d] Attitudes or other nonacoustic factors can modify this. Noise at low levels can still be an important problem, particularly when it intrudes into quiet environment.

Source: FICAN, 1980; FICON 1992 (Update)

SECTION 2

Noise Analysis

2.1 Methodology

The proposed action would accommodate future increases in aircraft operations at TKA. For the purpose of evaluating potential noise effects of the proposed action in residential areas in Talkeetna, extensive noise monitoring of ambient noise levels was conducted at several locations within those areas. The data obtained through the noise measurement program are used in conjunction with the FAA's Integrated Noise Model (INM) to evaluate noise impacts of the proposed action in terms of both the DNL and single-event effects. This information will assist the ADOT&PF to quantitatively assess the impacts of each project alternative and articulate them to the public.

The accepted method for evaluation of aircraft noise exposure in the vicinity of civilian airports is the use of the INM computer program. This noise model accounts for noise effects of aircraft landings, takeoffs and ground run-up operations based on an extensive database that has been developed from actual measurements.

The FAA's Office of Environment and Energy (AEE-100) has developed the INM for evaluating aircraft noise impacts in the vicinity of airports. INM has many analytical uses, such as assessing changes in noise impact resulting from new or extended runways or runway configurations, assessing new traffic demand and fleet mix, evaluating revised routing and airspace structures and assessing alternative flight profiles or modifications to other operational procedures.

The INM has been the FAA's standard tool since 1978 for determining the predicted noise impact in the vicinity of airports. Statutory requirements for INM use are defined in FAA Order 1050.1D, *Policies and Procedures for Considering Environmental Impacts*; Order 5050.4A, *Airport Environmental Handbook*; and FAR Part 150, *Airport Noise Compatibility Planning*.

The model utilizes flight track information, aircraft fleet mix, standard and user defined aircraft profiles and terrain as inputs. The INM model produces noise exposure contours that are used for land use compatibility maps. The INM program includes built in tools for comparing contours and utilities that facilitate easy export to commercial Geographic Information Systems.

The model also calculates predicted noise at specific sites such as hospitals, schools, and other sensitive locations. For these grid points, the model reports detailed information for the analyst to determine which events contribute most significantly to the noise at that location. The model supports 16 predefined noise metrics that include cumulative sound exposure, maximum sound level and time above metrics from both the A-Weighted, C-Weighted, and Effective Perceived noise level families. The user may also create user-defined metrics from these families, a popular example being the ability to create the Australian version of the Noise Exposure Forecast.

The INM aircraft profile and noise calculation algorithms are based on several guidance documents published by the Society of Automotive Engineers (SAE). These include the SAE-AIR-1845 report *Procedure for the Calculation of Airplane Noise in the Vicinity of Airports* as well others which address atmospheric absorption and noise attenuation. The INM is an average-value-model and is designed to estimate long-term average effects using average annual input conditions. Because of this, differences between predicted and measured values can occur because certain local acoustical variables are not averaged, or because they may not be explicitly modeled in INM. Examples of detailed local acoustical variables include temperature profiles, wind gradients, humidity effects, ground absorption, individual aircraft directivity patterns and sound diffraction around terrain, buildings, barriers. Differences may also occur due to errors or improper procedures employed during the collection of the measured data.

2.2 Noise Measurement Program

For the purpose of the noise study, a noise measurement survey was conducted between June 25 and 27, 2002. The noise measurement program included continuous (24-hour) noise level measurements and aircraft single-event noise measurements conducted at four residential locations.

In addition, supplementary single-event measurements of aircraft flights were conducted at the Talkeetna town center and single-event measurements of aircraft taxiing operations were performed at an on-airport location near the main taxiway. The continuous noise monitoring sites are representative of noise-sensitive locations within the community, which are affected by noise generated by aircraft flight to and from TKA. Figure 4 depicts the approximate locations of the noise monitoring sites.

The instrumentation used for the continuous measurements included four Larson-Davis Laboratories (LDL) Model 824 integrating sound level meters equipped with LDL Type 2560 1/2-inch condenser microphones. These sound level meters were calibrated prior to and throughout the measurement effort with LDL CA-200 acoustical calibrators to ensure the accuracy of the measurements.

For single-event measurements of aircraft taxiing operations and flights over the downtown park, a Bruel & Kjaer (B&K) Model 2231 sound level meter equipped with a B&K 4155 1/2-inch microphone. A B&K 4231 acoustical calibrator was used to calibrate the microphone. All the equipment comply with the American National Standards Institute and International Electrotechnical Commission requirements for Type 1 and 2 (precision) sound measurement instrumentation.

The noise monitoring program included the collection of single-event noise level data in terms of the L_{max} and the SEL for several overflights at each site. Appendix B presents the detailed aircraft single-event noise measurement data obtained in the field.

In addition to the single-event noise data, hourly L_{eq} at each continuous noise monitoring location was also collected in order to determine the DNL exposure. Appendix C includes summaries of the noise measurement results in terms of hourly noise levels and DNL values.

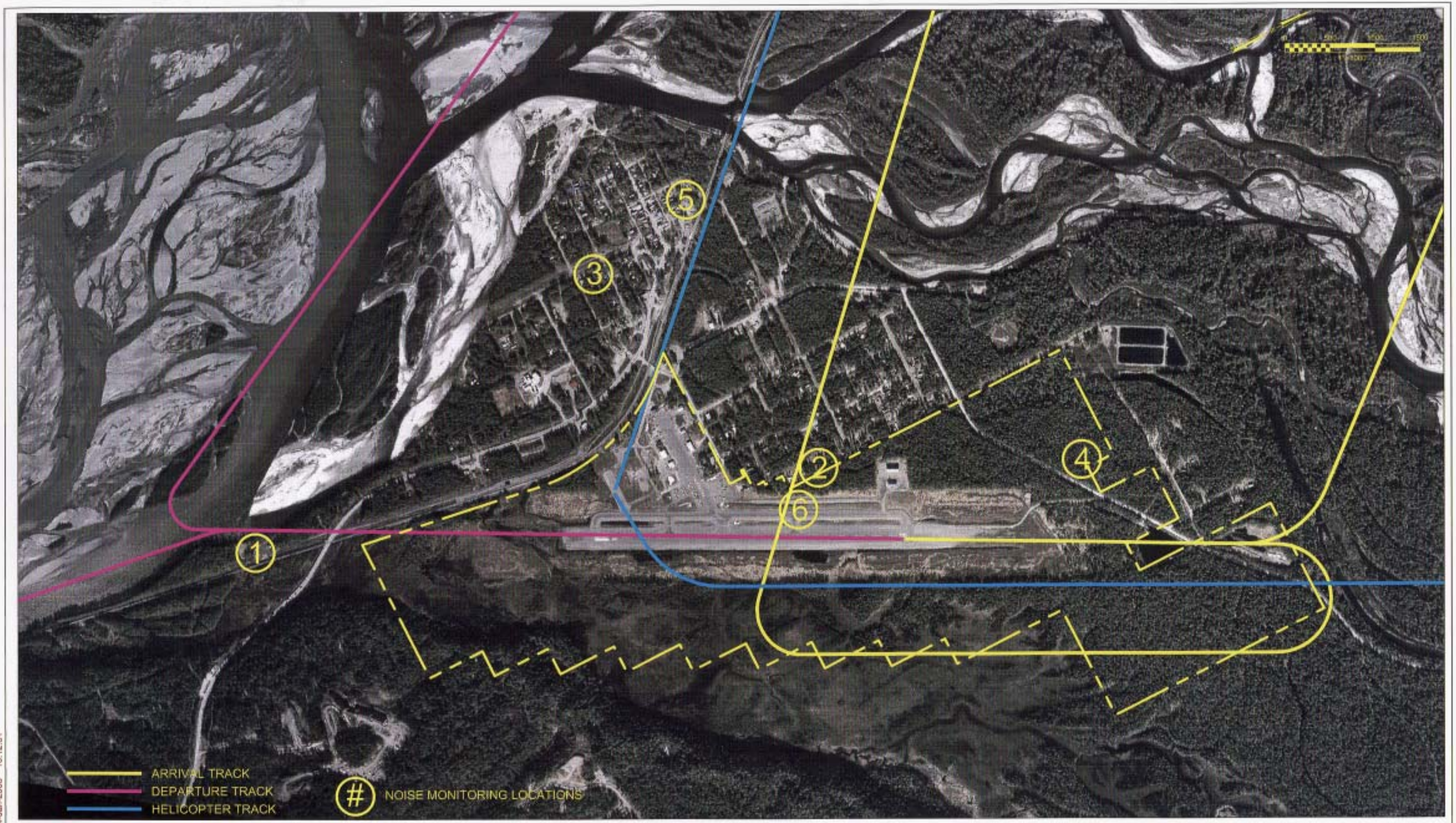


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FIGURE 4
NOISE MONITORING LOCATIONS

Table 4 summarizes the results of the aircraft single event noise measurement effort. Data shown in Table 4 shows that noise levels measured at each location were reasonably consistent across the single events at each site. This is particularly true of SEL values, which generally varied by no more than 3 dB at each location.

TABLE 4
Summary of Aircraft Noise Level Measurement Data

Monitoring Site	AC Type	Arrival (A) or Departure (D)	Number Sampled	L_{max}, dB Mean (Range)	SEL, dB Mean (Range)
Site 1	SEP	A	14	71.6 (53-82)	84.1 (60-89)
	SEP	D	146	77.2 (54-97)	89.4 (62-100)
	TEP	A	2	72.0 (61-83)	85.1 (67-88)
	TEP	D	12	82.3 (57-92)	90.5 (64-96)
Site 2	SEP	A	25	64.8 (57-82)	77.3 (65-86)
	SEP	D	82	73.7 (53-91)	88.1 (62-98)
	TEP	A	4	70.9 (64-78)	82.7 (72-86)
	TEP	D	9	71.3 (66-80)	80.9 (77-87)
Site 3	SEP	A	6	64.5 (52-76)	77.6 (59-82)
	SEP	D	88	63.1 (51-76)	78.1 (57-87)
Site 4	SEP	A	22	59.3 (50-75)	71.8 (58-80)
	SEP	D	16	59.5 (51-80)	78.0 (59-87)
	TEP	D	1	71.2	76.7

SEP = Single-engine propeller aircraft
TEP = Twin-engine propeller aircraft
L_{max} = Maximum noise level during the single aircraft noise event.
SEL = Sound exposure level, which is equivalent to the total acoustic energy produced by the single aircraft noise event.

Source: CH2M HILL

Based on the data presented in Table 4, aircraft flights to and from TKA do occasionally interfere with speech communication at the exteriors of the representative monitoring locations (noise levels from the aircraft reach or exceed the 60- to 65-dB range). Speech interference at these locations is expected to continue in the future with increased frequency; however, such interference is not expected to be significant. Aircraft noise levels would not interfere with normal daily activities during the majority of time.

Examination of community noise levels measured from other noise sources which are not associated with TKA reveals that noise events from single train passbys generate the highest noise levels at Site 1 and at locations in the vicinity of the railroad tracks. The maximum noise level (Lmax) generated from the horn of a freight train reached a level of 104 dB and SEL values from train passbys were in the range of 90 to 110 dB, with the highest values due to train noise events involving horn noise. At Site 3 and community locations represented by this site, noise generated by occasional taxiing and takeoff events by fixed-wing aircraft

at the Talkeetna Village Air Strip also contribute to the overall noise exposure. SEL values sampled from a few aircraft events at the Village Air Strip during the noise monitoring effort were between 75 to 85 dB.

2.3 Noise Impact Analysis

Generation of INM noise contours requires several pieces of information, including aircraft flight tracks and the number of operations by aircraft type assigned to the flight tracks on a daily basis. The goal of this study is to evaluate existing and future community noise exposure at noise-sensitive areas in the vicinity of TKA. Figure 5 shows the community, existing land use, and sensitive receivers.

For existing conditions, noise contours are generated for the existing annual average day and the existing peak-season day. For future (2015) conditions, noise contours for annual average day and peak-season day are developed under three different heliport alternatives: No Action, the Northeast Heliport Site (Alternative E), and the Southeast Heliport Site (Alternative C). Figure 6 depicts the heliport alternatives under consideration.

2.3.1 Airport Flight Operations

Historical data related to specific flight tracks and the associated number of aircraft operations are not available. To develop the flight tracks and operations numbers, CH2M HILL made a number of conservative yet realistic assumptions based on the existing available data, coupled with anecdotal information from a variety of sources. A detailed description of the flight operations analysis is included in Appendix D. Exhibit 3 of Appendix D shows the existing flight tracks, and Exhibit 4 shows the future flight tracks.

The operations data that will be used for the noise model, for both fixed-wing and helicopter activity, are summarized in Table 5.

TABLE 5
Flight Operations Data Summary

Peak Season	2000 (Part 135/GA)	2015 (Part 135/GA)
Fixed-wing departures per day		
South wind (Runway 18)	64 / 29	132 / 40
North wind (Runway 36)	7 / 3	15 / 4
Helicopter departures per day		
Military helicopter	2.8	2.8
Civil helicopter	12	22
Annual average	**2000 (Part 135/GA)**	**2015 (Part 135/GA)**
Fixed-wing departures per day		
South wind (Runway 18)	16/ 7	34 / 10
North wind (Runway 36)	6 / 3	12 / 4
Helicopter departures per day		
Military helicopter	0.7	0.7
Civil helicopter	3	5

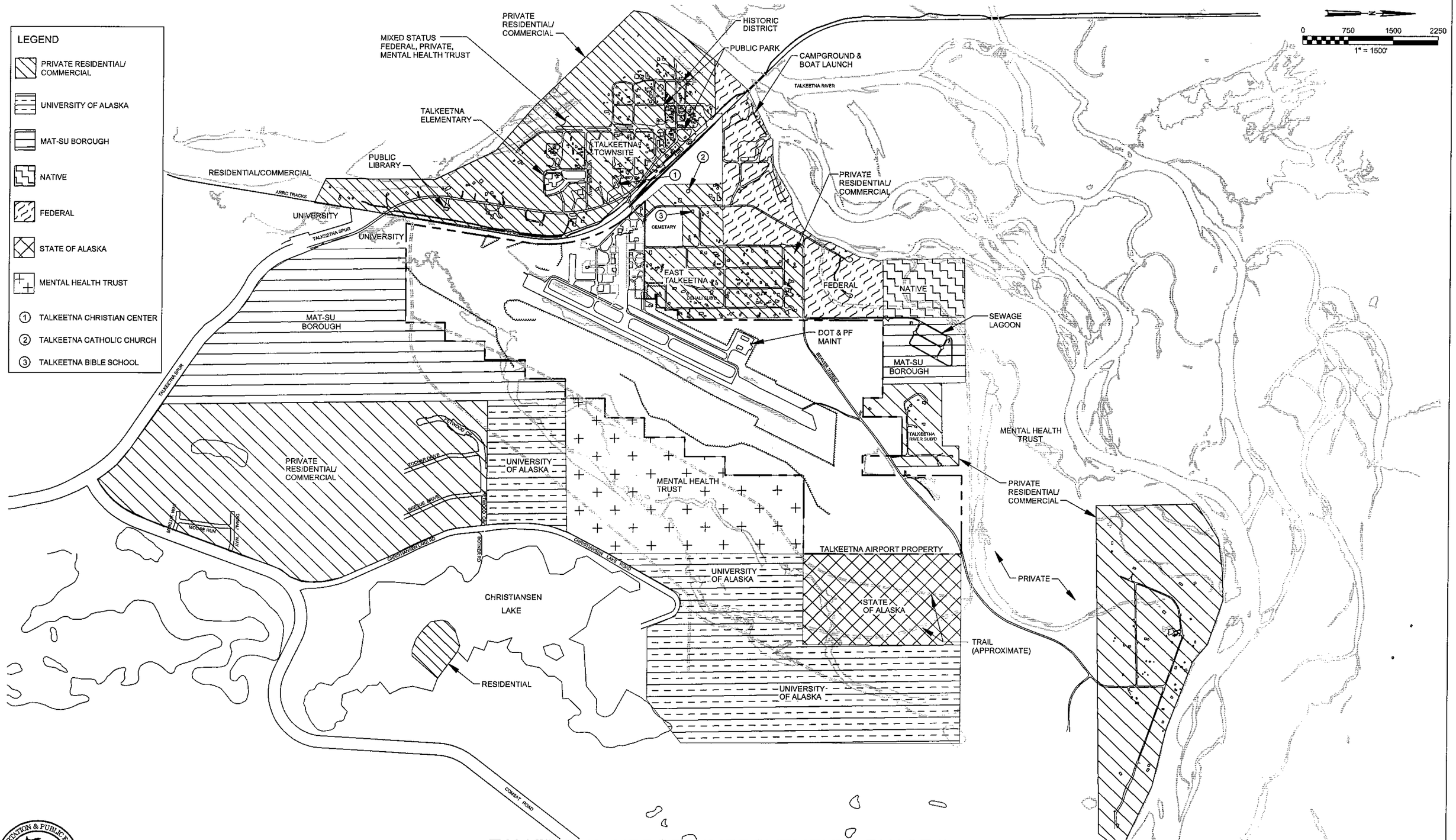

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FIGURE 5
GENERAL LAND STATUS AND LAND USE

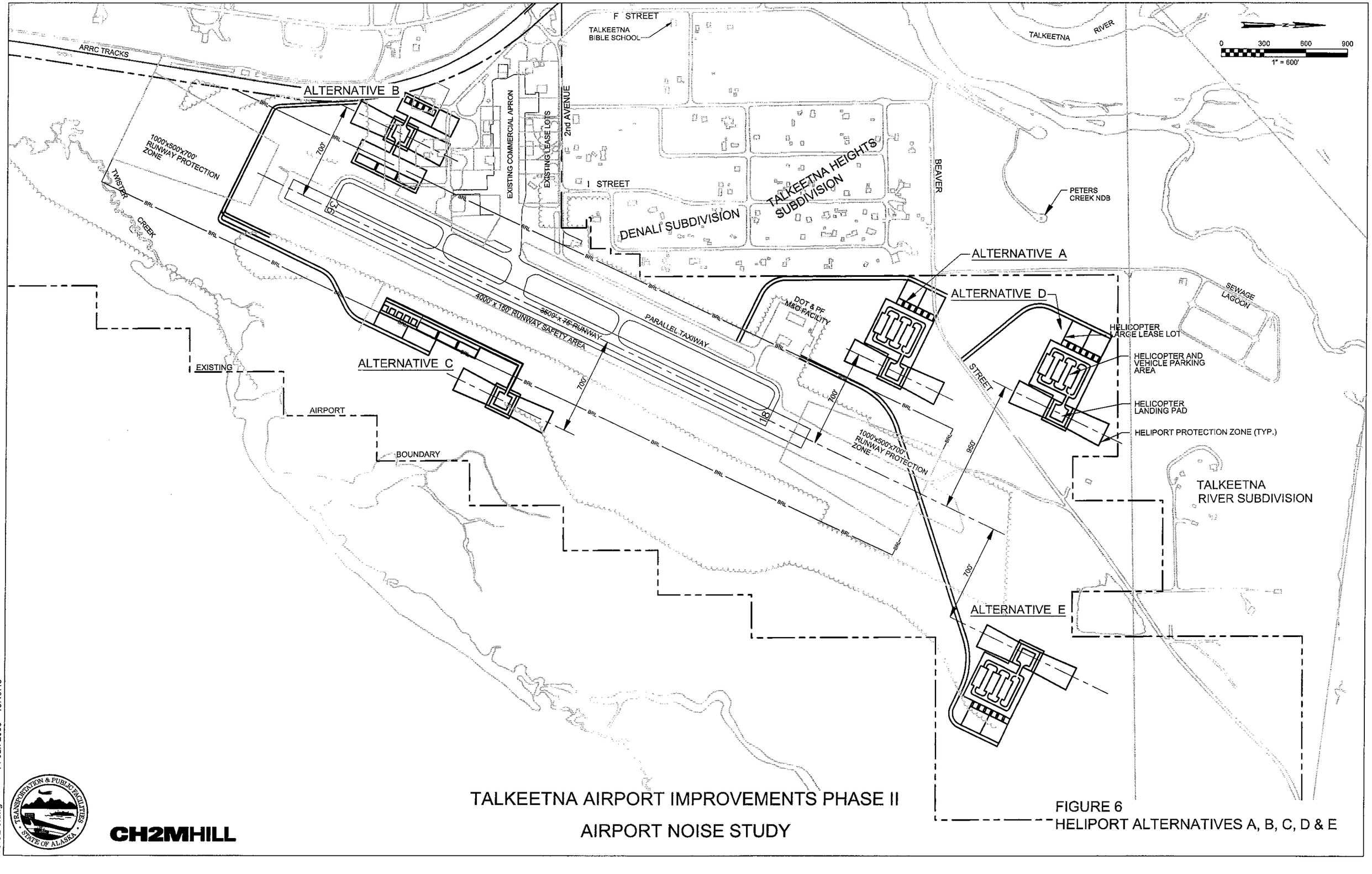

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FIGURE 6
HELIPORT ALTERNATIVES A, B, C, D & E

Table 6 summarizes fleet mix information for both fixed-wing aircraft and helicopters that will be used in the noise model. The existing and future fleet mix are assumed to be identical.

TABLE 6
Fleet Mix Information Summary

Fixed-Wing	Fixed-Pitch	Variable-Pitch	Twin-Engine
Part 135	22%	67%	11%
General aviation	86%	14%	0%

Helicopter	Eurocopter 315 Lama	Bell 206 Jet Ranger/Eurocopter 350 Astar	CH-47 Chinook
Military	0%	0%	100%
Civil	50%	50%	0%

2.3.2 Existing Noise Exposure

During the noise measurement period, between June 25 and 28, 2002, measured DNL values at the nearest residences west of the airport were up to 63 dB. At other community locations, measured aircraft noise levels are well below the DNL 65 dB land-use compatibility threshold. The noise monitoring program captured noise exposure data for a limited period of time during conditions similar to peak season and provided a basis for evaluating the accuracy of INM in predicting noise exposure around TKA.

In order to evaluate the existing noise environment, flight operations data described in the previous section along with generalized flight tracks developed from field observations were utilized within INM. Existing (2000) noise contours, in terms of DNL, were developed for an annual average day and a peak-season average day (based on a 90-day peak-season). Figures 7 and 8 depict the existing DNL 65, 70, and 75 dB contours for annual average day and peak-season average day, respectively.

As shown by the noise contours depicted in Figure 8, existing DNL 65 dB noise exposure even during the peak-season average day stays within airport property.

2.3.3 Future (2015) Noise Exposure

Future (2015) noise exposure in the vicinity of TKA was also estimated for the potential scenarios shown in the subsections below.

2.3.3.1 No Action

Under the future No Action Alternative, future airport flight operations are assumed to be as described in Section 2.3.1, with the airfield configuration remaining as it currently is. Similar to the analysis for existing conditions, DNL contours were developed for 2015 annual average day and peak-season average day. Figure 9 shows the annual average day DNL contours for the 2015 No Action Alternative, and Figure 10 shows the peak-season average day noise contours for the same alternative.

The contours depicted in Figure 10 show that the only noise-sensitive areas where the DNL 65-dB noise level would be exceeded are the adjoining lots within Denali Subdivision. Under the No Action Alternative, up to 8 lots could be affected due to noise from fixed-wing aircraft operations.

2.3.3.2 Southeast Heliport Alternative (Alternative C)

Under the future heliport Alternative C, future airport flight operations are assumed to be as described in Section 2.3.1 and Appendix D, with the heliport positioned on the east side and near the south end of the main runway (Figure 6).

Under this alternative, DNL contours were developed for 2015 annual average day and peak-season average day. Figure 11 shows the 2015 annual average day DNL contours for this alternative and Figure 12 shows the peak-season average day noise contours for the same alternative.

As with the No Action Alternative, the only noise-sensitive areas where the DNL 65-dB noise level would be exceeded would be up to 8 first-row lots adjacent to and west of the airport, primarily due to noise from taxiing and departures by fixed-wing aircraft. Heliport alternatives would not affect the noise levels in these areas.

2.3.3.3 Northeast Heliport Alternative (Alternative E)

Under the future heliport Alternative E, future airport flight operations are assumed to be as described in Section 2.3.1 and Appendix D, with the heliport positioned within the northeast part of the airport (Figure 6). Under this alternative, DNL contours were developed for 2015 annual average day and peak-season average day. Figures 13 and 14 show the 2015 annual average day and peak-season average day DNL contours, respectively.

As with the No Action Alternative, the only noise-sensitive areas where the DNL 65-dB noise level would be exceeded would be up to 8 first-row residential lots adjacent to and west of the airport. Fixed-wing aircraft departures are the main cause of high noise levels in these areas. Heliport alternatives would not affect the noise levels in these areas.

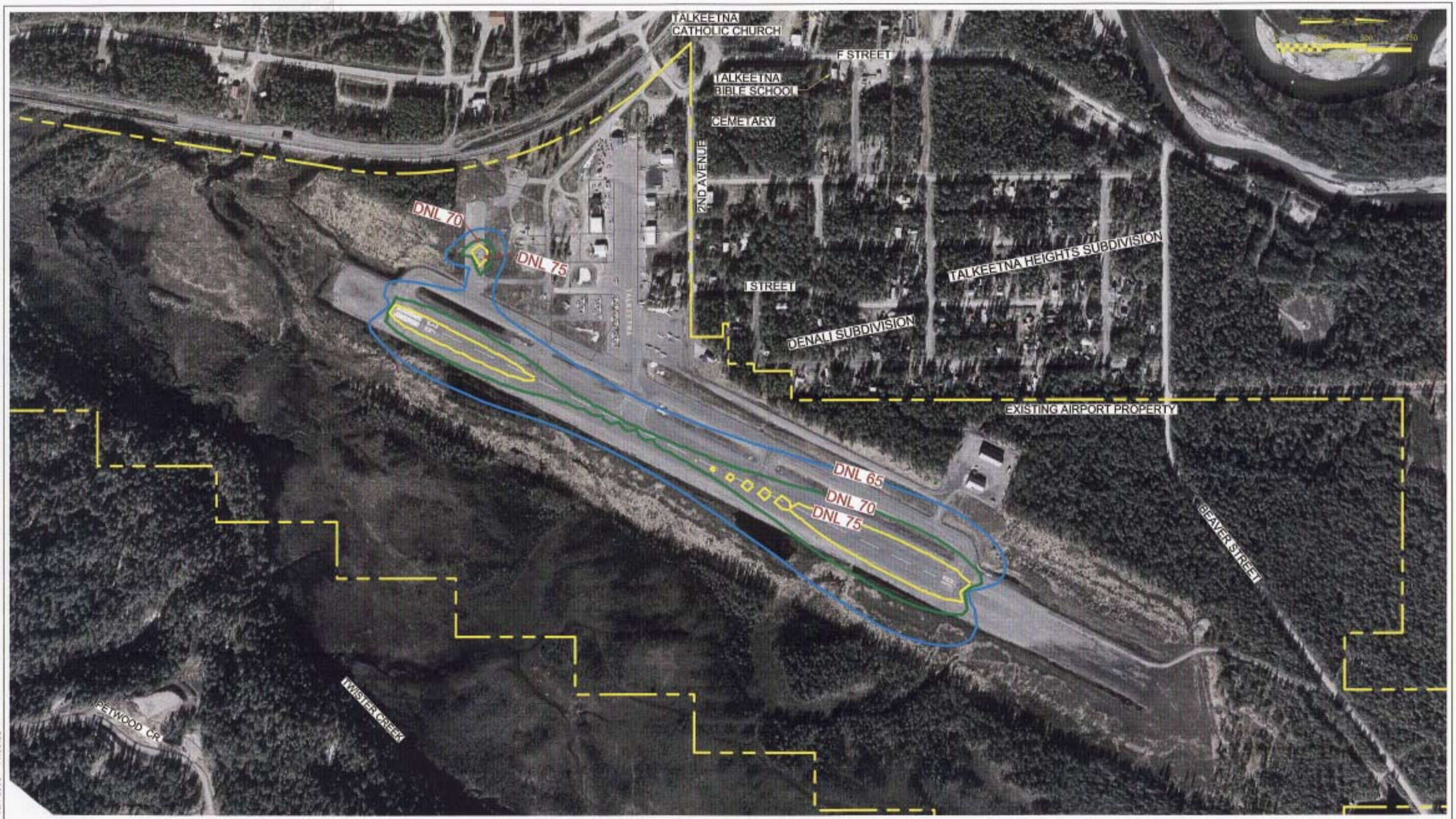

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FIGURE 7
EXISTING ANNUAL AVERAGE
DAY DNL CONTOURS

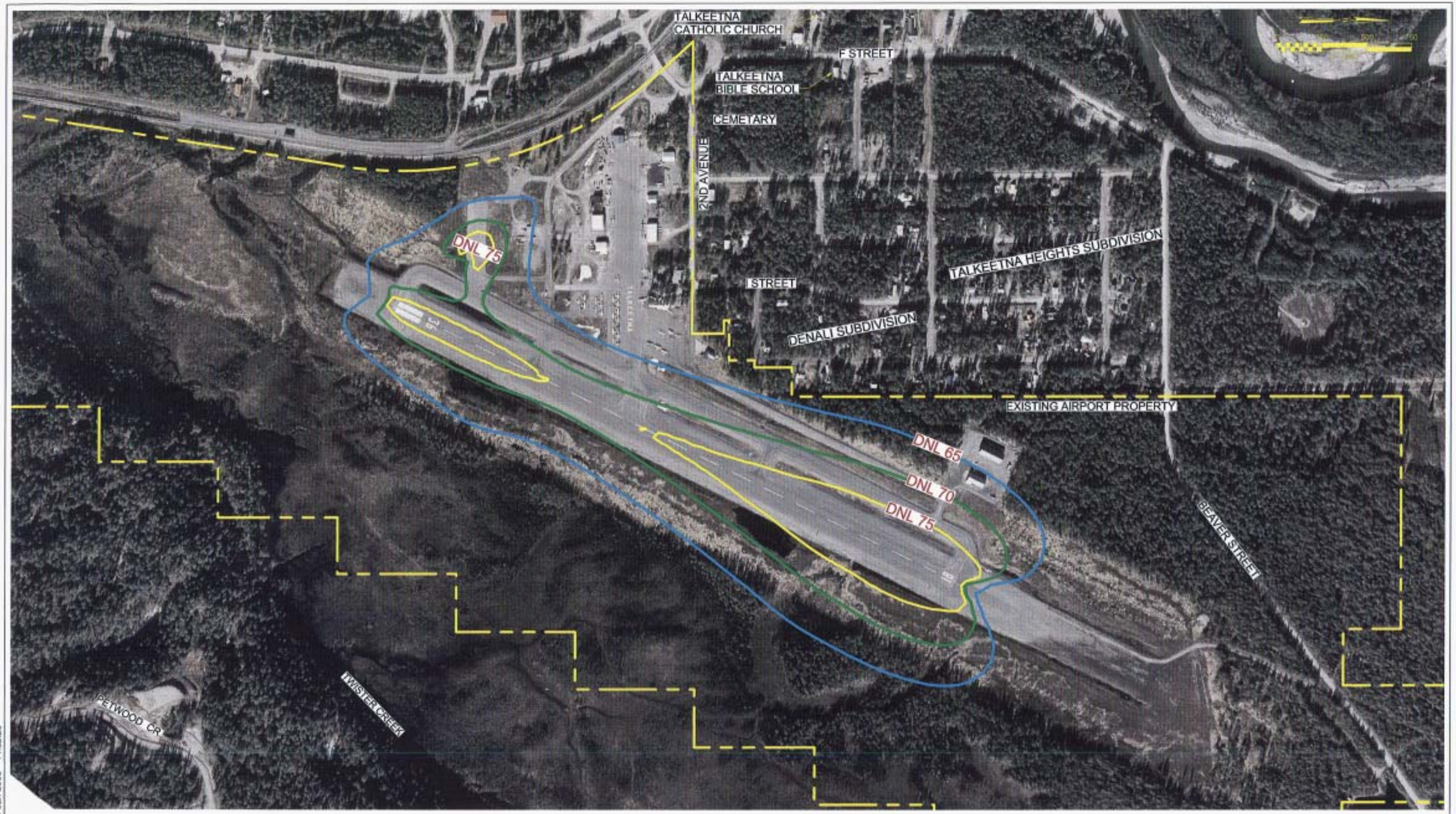

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FIGURE 8
EXISTING PEAK SEASON
AVERAGE DAY DNL CONTOURS

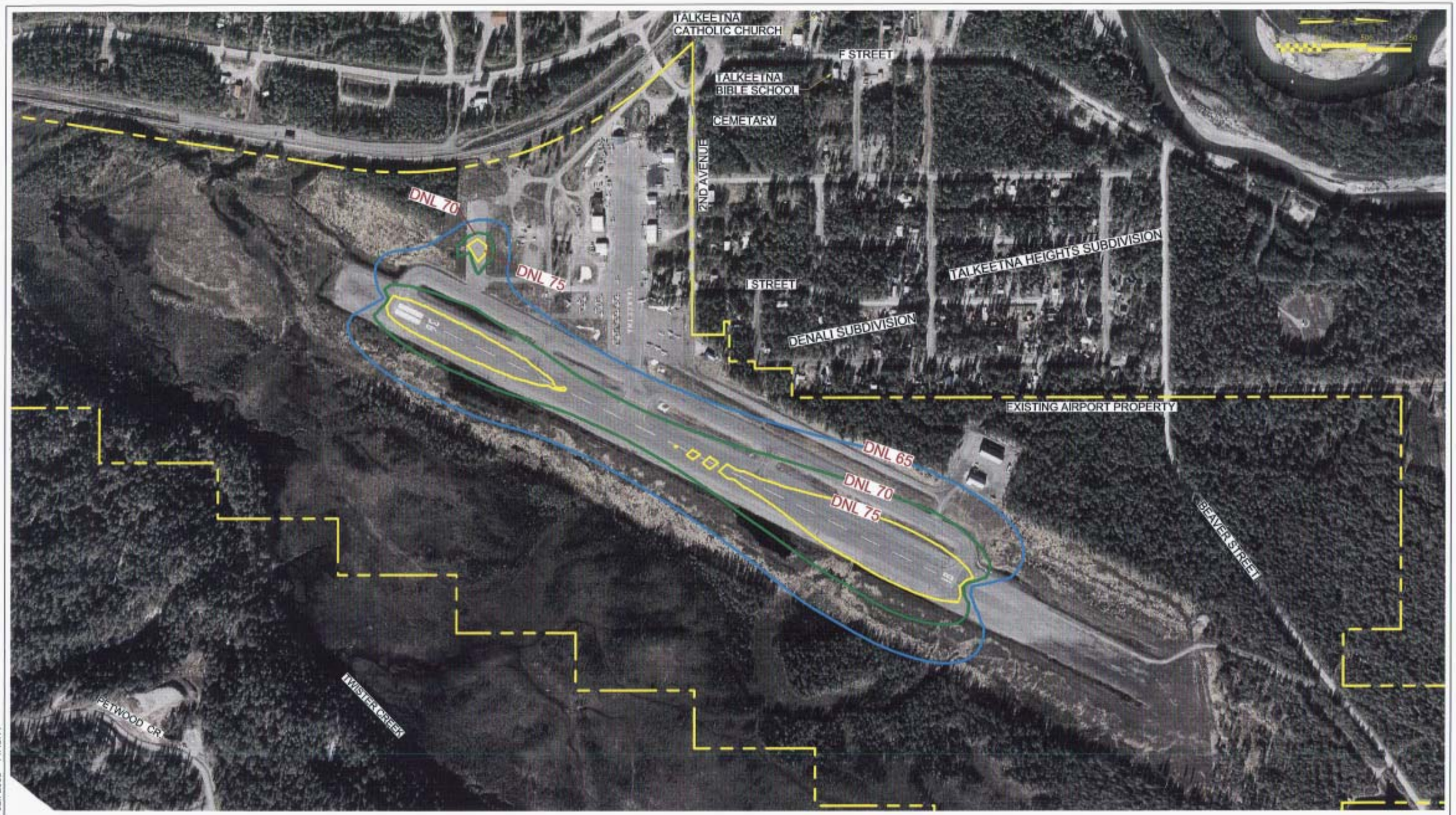

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FIGURE 9
2015 NO ACTION ANNUAL
AVERAGE DAY DNL CONTOURS

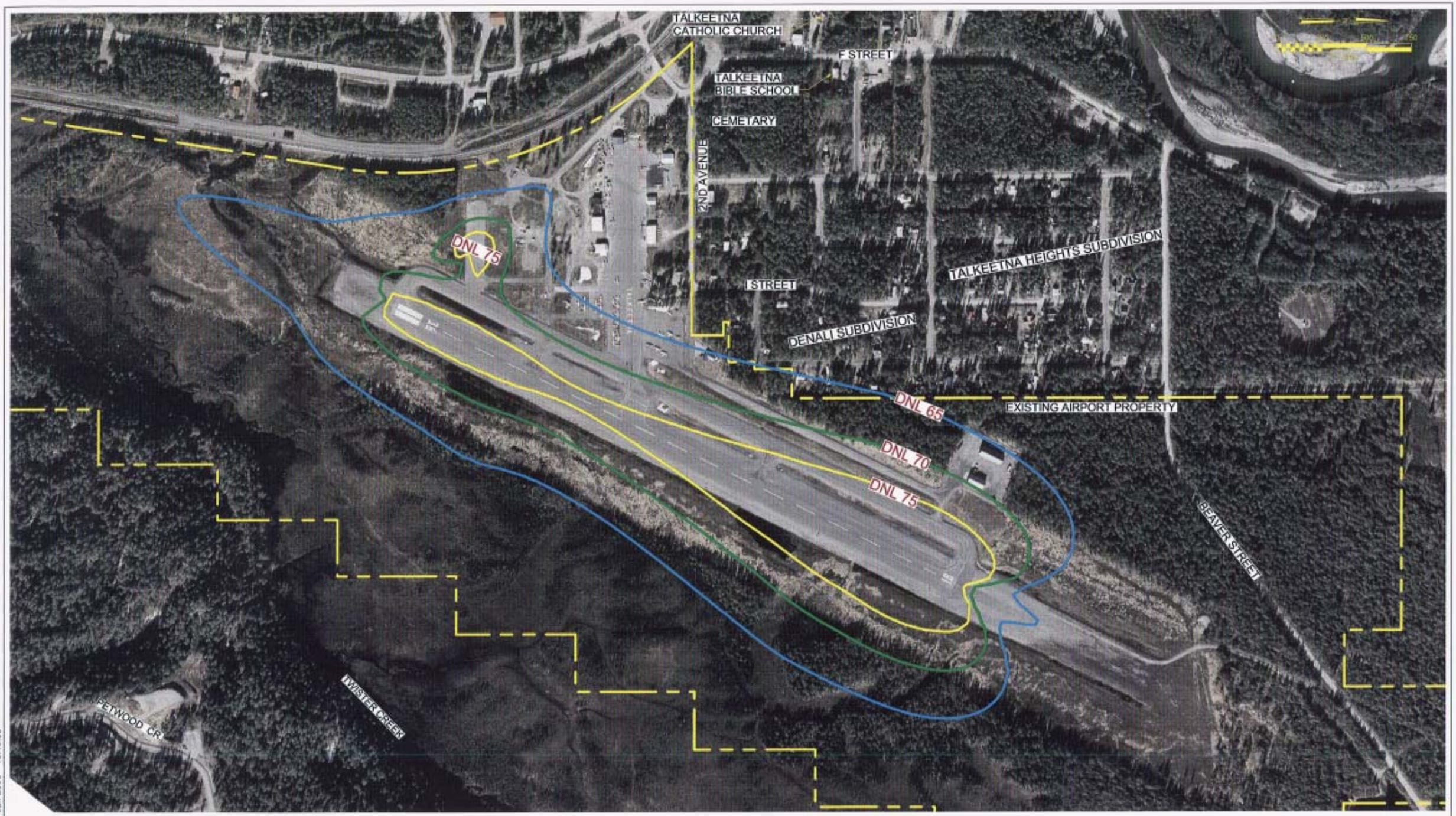

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FIGURE 10
2015 NO ACTION PEAK SEASON
AVERAGE DAY DNL CONTOURS

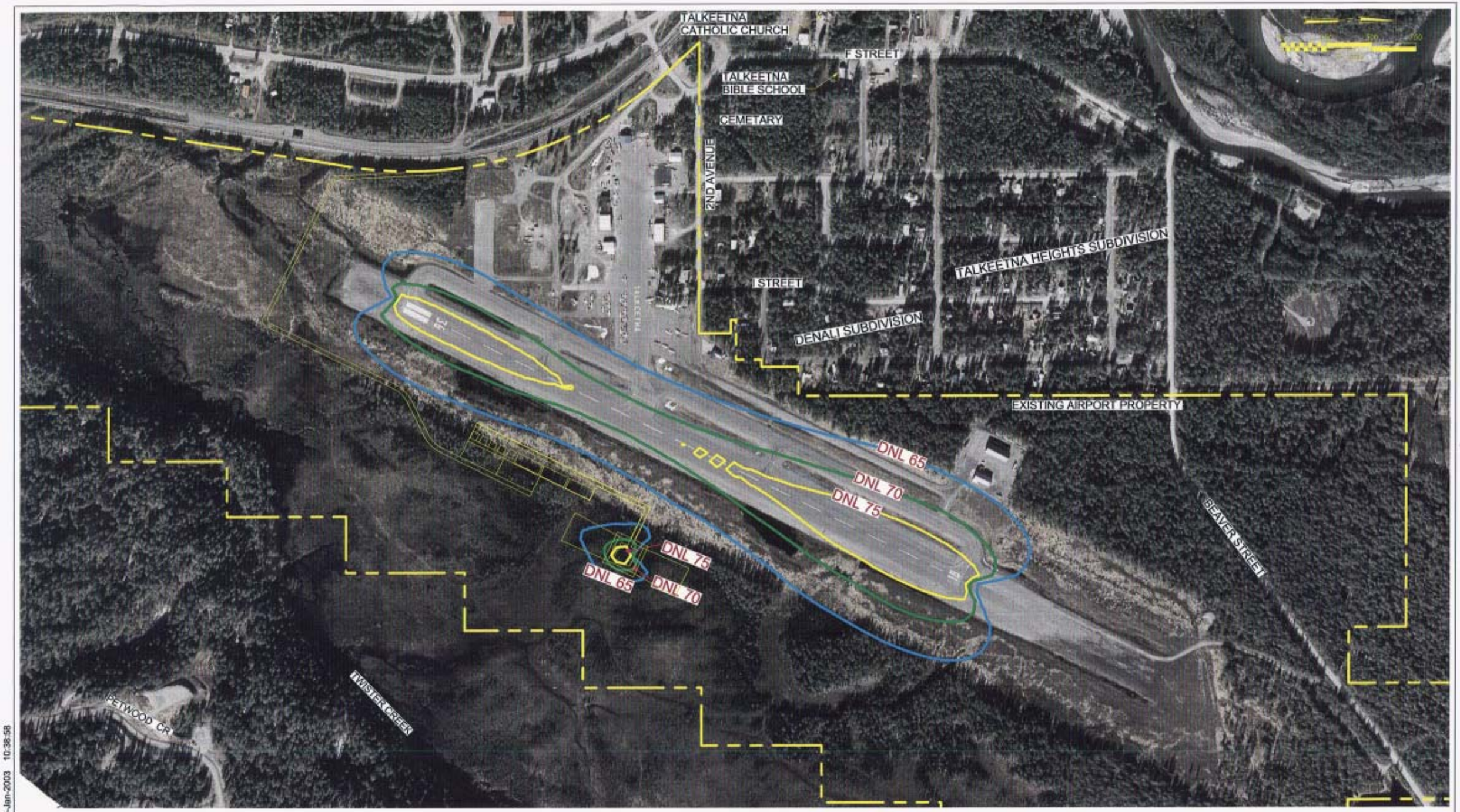

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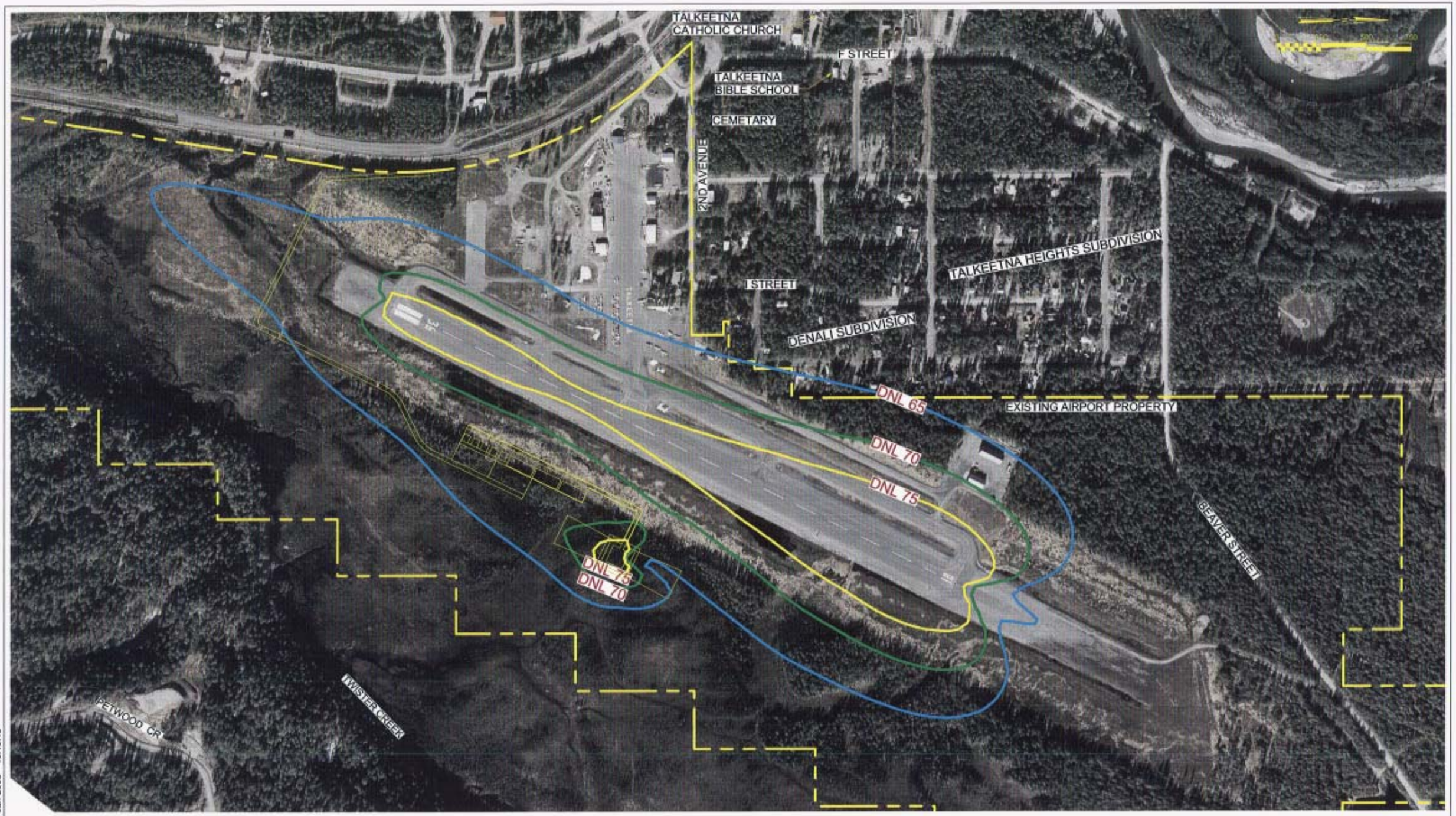
FIGURE 11
2015 ALTERNATIVE C HELIPORT
ANNUAL AVERAGE DAY DNL CONTOURS



TALKEETNA AIRPORT IMPROVEMENTS PHASE II

AIRPORT NOISE STUDY

FIGURE 12
2015 ALTERNATIVE C HELIPORT
PEAK SEASON AVERAGE DAY DNL CONTOURS

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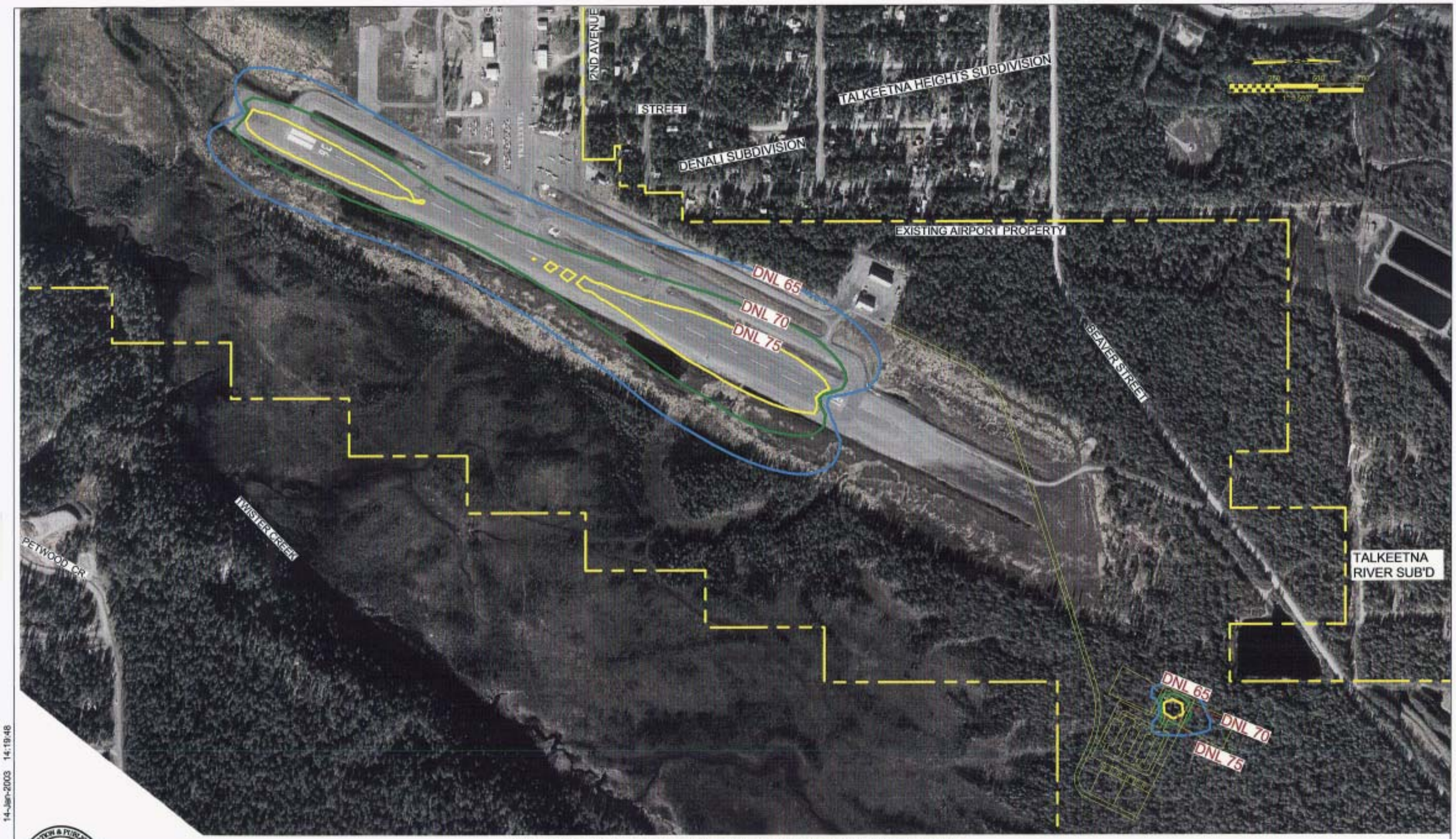

F-NEAV.dwg 14-Jan-2003 14:19:48

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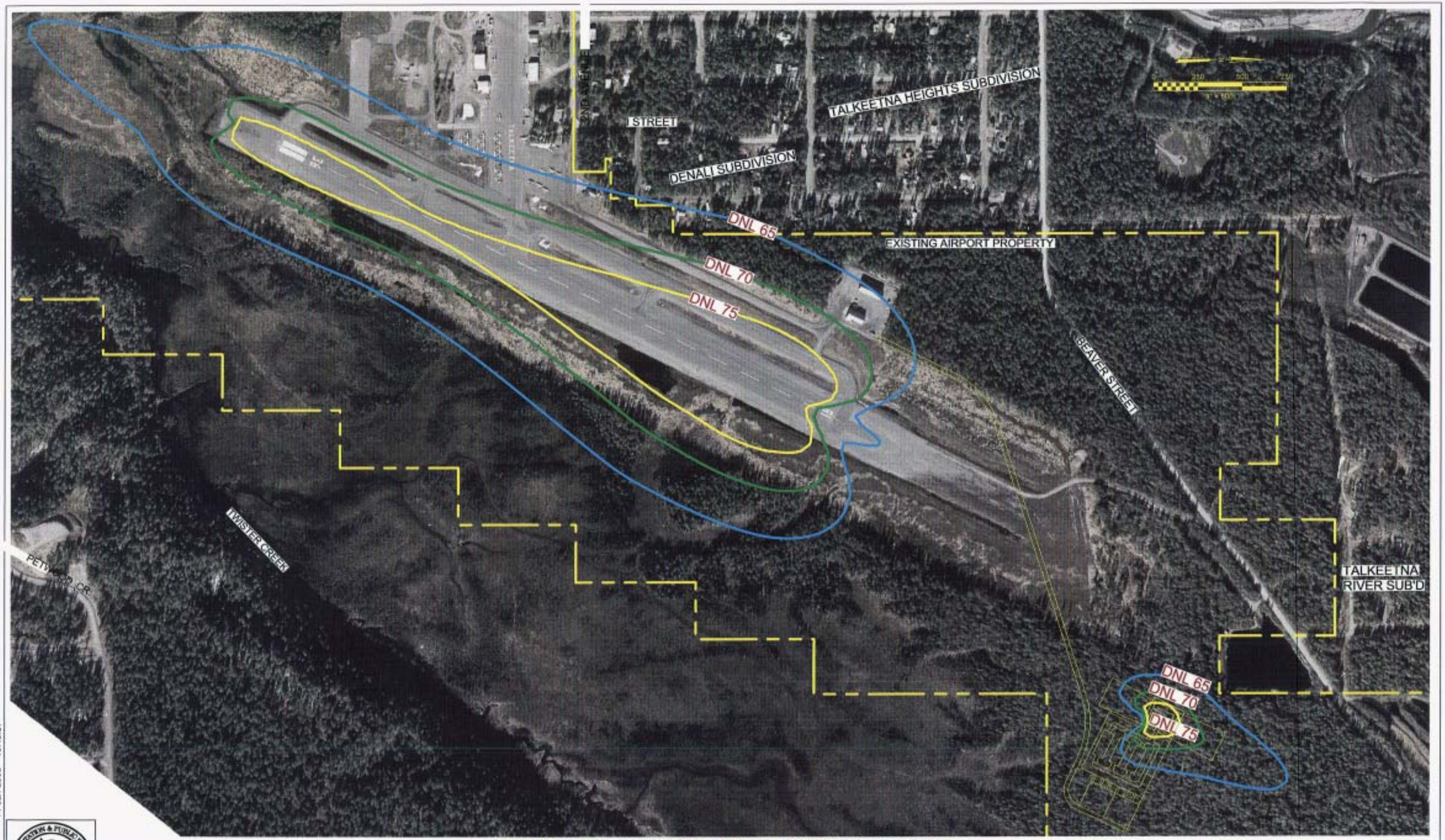
TALKEETNA AIRPORT IMPROVEMENTS PHASE II

AIRPORT NOISE STUDY

FIGURE 13
2015 ALTERNATIVE E HELIPORT
ANNUAL AVERAGE DAY DNL CONTOURS



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TALKEETNA AIRPORT IMPROVEMENTS PHASE II

AIRPORT NOISE STUDY

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FIGURE 14
2015 ALTERNATIVE E HELIPORT
PEAK SEASON AVERAGE DAY DNL CONTOURS

SECTION 3

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Appendix A
Acoustical Terminology

APPENDIX A
ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
DECIBEL, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Ldn or DNL:	Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
Leq:	Equivalent Sound Level. The sound level contining the same total energy as a time-varying signal over a given sample period. Leq is typically computed over 1, 8 and 24-hour sample periods.

NOTE: Ldn represent daily levels of noise exposure averaged on an annual basis, while Leq represents the average noise exposure for a shorter time period, typically one hour.

Lmax:	The maximum noise level recorded during a noise event.
SEL or SENEL:	Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.
SOUND LEVEL:	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of

the human ear and gives good correlation with subjective reactions to noise.

Appendix B
Aircraft Noise Level Data Sheets

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study	Date: 25 Jun 2002
Measurement Location: Ed Craver's House (Site 1)	Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200	
Weather Conditions: Overcast, 65 deg. F, calm (torrential downpour between 14:55 and 16:05)	

Time	AC Type	A/D	Rwy	Leq	Lmax	SEL	AZM	Comments
12:19	---	---	---	61.5	68.0	77.9	---	Mahay's River Boat
12:34	TETP	A	36	77.6	87.7	92.5	---	
13:22	SEP	D	18	68.6	75.7	82.8	---	
13:24	SEP	D	18	83.4	97.2	100.3	---	
14:25	SEP	D	18	53.2	56.9	65.9	30E	
16:08	SEP	D	18	67.8	81.4	87.5	75E	
16:15	SEP	OF	---	56.0	60.0	74.2	---	Heading West
16:16	SEP	OF	---	57.7	62.3	72.4	---	Heading West
16:29	SEP	OF	---	59.3	64.9	73.8	---	Heading North
16:32	SEP	OF	---	58.1	61.9	73.5	---	Same Plane Heading West
16:42	SEP	D	18	75.9	88.5	94.1	---	
16:47	SEP	D	18	51.9	53.8	63.0	---	
16:51	SEP	D	18	71.3	79.4	85.9	---	
16:54	---	---	---	74.4	84.4	94.3	---	Train
17:56	SEP	A	36	63.0	69.8	75.0	---	Float Plane
18:27	SEP	A	36	51.7	52.8	59.9		
20:00	---	---	---	84.7	102.2	106.2	---	NB Freight Train
20:51	---	---	---	69.8	77.9	91.2	---	SB Freight Train

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Ed Craver's House (Site 1)								Data by: KRW
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Partly sunny, 60deg. F, light breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
5:50	---	---	---	72.1	81.3	91.9	---	SB freight train
9:17	SEP	D	18	69.9	79.2	84.5	90	
9:20	SEP	D	18	74.6	88.1	92.9	90	Turn after site along river NW (to mountain)
9:22	SEP	D	18	72.4	83.9	88.2	90	Turn after site along river NW (to mountain)
9:29	---	---	---	56.7	60.6	74.1	---	2 Riverboats SE (Downstream)
9:30	SEP	D	18	77.7	88.0	91.6	90	Turn after site NW
9:35	SEP	D	18	77.2	89.7	95.3	90	Turn over site NW (Beaver)
9:42	SEP	D	18	65.1	70.6	79.1	90	Head S, No turns
9:55	SEP	A	36	62.4	69.0	76.2	60 NW	SB from mountain, Turned over site
10:00	SEP	A	36	63.0	70.1	78.2	90	SB from mountain, Turned over site
10:09	SEP	A	36	64.9	72.1	78.7	90	SB from mountain, Turned over site
10:18	---	---	---	53.1	54.9	62.3	---	Helicopter to N, Plane in distant N W
10:19	---	---	---	58.3	62.4	73.4	---	Mahay's Riverboat SB
10:21	SEP	D	18	68.8	78.0	85.5	75 N	Turned before/over site NW
10:29	---	---	---	60.7	66.6	80.7	---	Mahay's Riverboat NB
10:34	SEP	D	18	74.1	83.4	88.6	90	SB, straight out
11:01	SEP	D	18	67.0	75.6	83.6	90	SB, No turns
11:03	---	---	---	52.7	54.4	61.0	---	Plane in distance to North
11:05	TETP	D	18	75.7	84.5	89.5	90	Turn after site NW
11:07	TETP	D	18	80.4	91.6	94.8	90	Turn after site NW
11:10	SEP	D	18	73.7	86.4	91.3	90	Turn after site NW
11:15	---	---	---	52.2	54.4	64.1	---	Helicopter in distance to N
11:18	SEP	D	18	68.6	76.9	83.1	80 E	SB, No turns
11:19	SEP	D	18	69.4	80.9	86.0	90	Turn over river, NW
11:21	SEP	D	18	75.7	85.0	90.5	75 N	Turn before site, NW
11:24	---	---	---	60.2	64.9	73.5	---	Plane to distant North
11:25	SEP	D	18	64.1	70.3	78.8	75 N	Turned before site, NW
11:32	SEP	D	18	73.6	85.5	90.0	90	Turned after site, NW
11:36	---	---	---	83.8	97.4	105.1	---	NB Train (Passenger) + 2 SEP lakeoffs

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Ed Craver's House (Site 1)								Data by: KRW
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Mostly cloudy 60-65 deg. F, little to no breeze , windy afternoon								
Time	AC Type	A/D	Rwy	Leq	Lmax	SEL	AZM	Comments
11:43	SEP	D	18	74.2	83.9	90.3	90	Turned over site, NW
11:51	SEP	D	18	74.3	84.6	90.5	75 N	Turned before site, NW
11:57	SEP	D	18	76.2	85.9	90.9	90	Turned over site, NW
12:00	SEP	D	18	77.1	87.2	91.4	90	SB, No turns
12:08	SEP	D	18	73.2	85.1	91.5	75 N	Turn before site, NW; another SEP turned over site AZM 90 headed NW
12:09	SEP	D	18	64.6	69.6	77.6	90	Turn before site, NW
12:13	SEP	---	---	51.7	53.5	66.8	90	Overflight – very high in sky
12:16	---	---	---	58.5	63.6	73.5	---	Mahay's Riverboat SB
12:18	SEP	D	18	75.3	87.1	92.8	90	Turned over site, NW
12:23	TETP	A	36	60.8	66.2	74.2	75 N	From NW, curved over site to NE
12:25	---	---	---	57.1	62.5	75.6	---	Mahay's Riverboat NB
12:46	SEP	D	18	74.6	84.9	90.0	90	Straight out
12:47	SEP	D	18	68.2	78.6	84.6	90	Turned over site, NW
12:58	SEP	D	18	75.6	86.6	90.5	90	Turned over site, NW
14:17	SEP	D	18	71.7	81.7	88.1	75 W	Turned before site, NW
14:22	SEP	D	18	74.1	84.6	91.5	90	Turned before site, NW
14:23	SEP	D	18	78.5	90.5	96.0	90	Turned before site, NW
14:25	TETP	D	18	79.7	89.4	93.0	90	Turned after site, NW
14:29	SEP	D	18	69.8	76.9	85.0	90	SB, No turns
14:42	---	---	---	60.2	67.0	77.8	---	Mahay's Riverboat, SB
14:46	SEP	D	18	74.5	84.3	90.2	75 N	Turned before site, NW
14:51	---	---	---	59.7	63.3	76.4	---	Mahay's Riverboat, NB
14:54	SEP	D	18	71.7	79.7	86.1	75 N	Turned before site, NW
14:55	SEP	D	18	68.8	76.3	82.5	75 N	Turned before site, NW
14:58	SEP	D	18	75.5	84.3	89.8	90	Turned after site, NW
14:59	SEP	D	18	66.4	73.6	81.5	75 N	Turned before site, NW
15:02	SEP	D	18	74.3	84.3	89.5	90	Turned aways after site, NW
15:03	SEP	D	18	72.5	80.3	86.2	75 N	Turned before site, NW
15:03	SEP	D	18	53.7	56.0	64.0	90	SB, No turns

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Ed Craver's House (Site 1)								Data by: KRW
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: partly cloudy 60 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
15:04	SEP	D	18	67.7	74.9	83.5	75 N	Turned before site, NW
15:12	SEP	D	18	69.2	77.4	84.1	90	SB, No turns
15:14	SEP	D	18	79.9	91.5	95.6	90	Turned over site, NW
15:30	---	---	---	58.0	71.7	75.4	---	Private riverboat, SB
15:38	SEP	D	18	71.0	80.2	90.0	75 N	Turned before site, NW; another SEP turned over site NW AZM 90
15:40	SEP	D	18	77.4	91.2	94.7	90	Turned after site, NW
16:12	SEP	D	18	72.6	82.4	88.5	75 N	Turned before site, NW
16:13	SEP	D	18	72.9	84.0	91.3	90	Turned over site, NW
16:19	SEP	D	18	68.3	77.5	85.4	75 N	Turned before site, NW
16:22	SEP	D	18	71.0	79.0	85.4	90	Turned over site, NW
16:44	TETP	D	18	75.9	87.6	91.1	90	Turned after site, NW
16:58	SEP	D	18	61.4	66.8	74.6	60 N	Turned before site, NW
17:02	SEP	D	18	71.4	79.8	86.8	75 N	Turned before site, NW
17:08	---	---	---	71.9	83.1	93.0	---	SB Passenger train
17:12	SEP	D	18	79.8	90.4	95.5	90	Turned before site, NW
17:13	SEP	D	18	70.8	80.6	87.0	90	Turned after site, NW
17:17	SEP	D	18	69.5	80.8	89.2	---	4 events
17:19	SEP	D	18	78.6	90.2	95.8	75 N	Turned before site, NW
17:21	SEP	D	18	72.1	81.6	87.6	75 N	Turned before site, NW
17:23	SEP	D	18	72.1	82.0	88.3	90	Turned left, circled back North
17:28	SEP	D	18	55.8	60.1	71.0	90	SB, turned E, circled back N
17:30	SEP	D	18	69.8	76.8	85.1	90	SB, turned E, circled back N
17:32	SEP	D	18	71.3	83.7	89.1	90	SB, turned E, circled back N
17:35	SEP	D	18	74.0	85.7	90.3	75 N	Turned before site, NW
17:36	SEP	---	18	68.2	75.9	82.4	90	SB, turned E, circled back N
17:37	SEP	---	18	68.0	80.0	86.9	90	Same plane, SB, turned over site, NW
17:39	SEP	A	18	68.5	79.0	84.6	90	SB, turned E over site circled N
17:43	SEP	A	18	73.2	82.2	88.4	90	SB, turned E over site circled N
17:47	SEP	A	18	70.0	82.1	88.6	90	SB, turned E after site circled N

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Ed Craver's House (Site 1)								Data by: KRW
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: partly cloudy 60 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
17:51	SEP	A		70.5	80.6	87.4	90	SB turned E over site circled N
17:54	SEP	A		68.7	80.4	87.8	90	SB turned E over site circled N
18:01	SEP	A		66.0	74.1	84.1	90	SB turned E over site circled N
18:06	SEP	A		67.2	74.0	84.2	90	SB turned E after site circled N

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 27 Jun 2002
Measurement Location: Ed Craver's House (Site 1)								Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Sunny, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
8:42	SEP	D	18	68.6	75.9	83.5		
8:52	SEP	D	18	70.2	80.6	87.6		Beaver
8:59	SEP	D	18	66.0	74.9	81.4		Beaver
9:08	SEP	D	18	81.8	96.4	99.6		185
9:12	SEP	D	18	72.7	80.8	87.6		Turned SE
9:13	SEP	D	18	72.7	85.1	92.2		Beaver NW
9:15	SEP	D	18	68.7	77.0	82.6		185 SB
9:16	SEP	D	18	71.1	81.2	86.3		185 NW
9:19	SEP	D	18	70.4	79.5	85.3		185 SE
9:19	SEP	D	18	73.1	83.1	89.2		185 NW
9:23	SEP	D	18	69.9	79.7	85.4		185 SE
9:27	TEP	D	18	82.1	92.2	96.1		K2 Aviation SB
10:15	TEP	A	36	73.4	82.9	88.1	90	Cargo Plane
10:19	SEP	D	18	77.0	88.7	95.1	75 W	Beaver SB to NB
10:21	TEP	D	18	71.9	80.2	86.3	90	Cargo Plane
10:23	SEP	D	18	73.8	85.5	89.9	85 W	206 SB to NB
10:30	TEP	D	18	71.6	81.2	86.9	90	Cargo Plane
10:36	TEP	A	36	53.8	61.1	66.9		Cargo Plane
10:38	SEP	OF		57.1	62.4	69.9	65 N	185 East
10:41	TEP	D	18	71.5	79.0	85.4	90	Cargo Plane
11:02	SEP	D	18	78.5	91.5	95.2	90	Beaver
11:06	SEP	D	18	73.5	87.5	92.2	85 W	185 NB and Beaver NB
11:09	SEP	D	18	62.7	70.1	76.9	65 N	Beaver NB
11:10	TEP	D	18	76.7	87.5	91.4	87 E	K2 Aviation NB
11:11	SEP	D	18	69.7	78.2	84.9	87 W	185 NB
11:13	SEP	D	18	72.0	82.8	88.1	87 W	185 NB
11:14	SEP	D	18	67.7	76.5	83.1	87 E	185 NB
11:33	TEP	D	18	79.2	89.9	93.4	90	K2 NB
11:41	SEP	---	---	91.9	103.6	109.9	---	Train whistle

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 27 Jun 2002
Measurement Location: Ed Craver's House (Site 1)								Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Sunny, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
12:00	SEP	D	18	65.8	74.2	79.8	90	185 SB
12:05	SEP	D	18	76.1	88.2	94.5	89 E	185 SB and Beaver SB AZM 75W
12:12	---	---	---	58.7	63.0	74.5	---	Riverboat SB
12:16	SEP	D	18	65.5	75.0	82.5	90	Turned Then Headed N (206)?
12:16	SEP	D	18	73.2	84.0	91.3	88 W	Beaver NB
12:19	SEP	D	18	60.3	65.2	74.1	65 N	Beaver NB (turned real early)
12:20	SEP	D	18	75.5	87.7	94.0	88 W	185 Headed SE, Float Plane S to NB AZM 55E
12:24	---	---	---	58.7	62.3	77.6	---	Riverboat NB
12:31	SEP	A	18	51.9	53.8	60.1	55 N	Midfield Entry, 2 SEP's
12:37	SEP	OF		52.3	54.3	67.5	90	Headed NW
12:44	SEP	D	18	72.5	84.9	91.4	90	Beaver NB
12:49	SEP	OF		54.5	58.6	69.5	75 W	175 NB
12:50	SEP	D	18	73.5	84.5	88.3	90	185 NB
12:54	SEP	D	18	70.6	82.4	91.4	90	185 NB, and 185 SB
13:02	SEP	D	18	71.0	81.0	91.5	85 W	Beaver NB also 185 and another Beaver NB both at AZM 80W
13:07	TEP	D	18	70.6	81.1	86.3	75 E	NB
13:09	SEP	D	18	68.4	77.0	83.6	85 W	Beaver NB
13:10	SEP	D	18	72.6	83.4	88.4	85 W	Beaver NB
13:11	SEP	D	18	68.2	76.9	83.3	85 W	Beaver NB
13:12	SEP	D	18	75.2	88.3	93.4	85 W	206 NB
13:13	SEP	D	18	54.3	57.5	67.8	83 E	185 NB
13:17	SEP	D	18	69.3	78.2	84.2	90	SB
13:18	SEP	D	18	67.8	76.0	82.2	90	SB
13:19	SEP	D	18	55.1	59.1	66.7	85 W	NB
13:21	TEP	D	18	77.1	86.1	90.9	90	NB
13:26	SEP	D	18	69.4	78.0	84.8	90	185 SB
13:32	HELI	A	---	57.7	63.2	73.6	40 W	Landing
13:37	---	---	---	68.6	73.9	85.8	OW	Train SB
14:44	SEP	D	18	70.3	81.6	86.4	90	185 NB

CH2MHILL

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study	Date: 27 Jun 2002
Measurement Location: Ed Craver's House (Site 1)	Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200	
Weather Conditions: Sunny, 65 deg. F, slight breeze	

Time	AC Type	A/D	Rwy	Leq	Lmax	SEL	AZM	Comments
14:47	---	---	---	55.9	62.0	75.7	---	Riverboat NB
15:01	SEP	D	18	73.1	84.7	90.9	88 W	Beaver NB
15:06	SEP	D	18	61.7	66.9	74.1	65 N	Beaver NB turned early
15:07	TEP	D	18	74.3	81.7	87.1	88 E	SB
15:11	SEP	D	18	68.7	76.6	83.0	80 W	185 NB
15:12	SEP	D	18	66.9	73.9	81.2	85 E	Beaver SB
15:13	SEP	D	18	67.0	75.3	82.9	85 E	185 NB
15:14	TEP	D	18	74.4	84.3	88.4	85 E	NB
15:23	SEP	D	18	72.6	82.3	87.8	75 W	185 NB
15:23	SEP	D	18	53.1	55.3	62.6	75 W	Beaver NB
15:24	SEP	D	18	70.8	79.7	87.1	80 W	Beaver NB
15:28	SEP	D	18	74.3	87.0	91.7	85 W	Beaver NB
15:29	SEP	D	18	56.9	61.2	65.1	80 W	185 NB
15:30	TEP	D	18	75.5	88.0	92.6	90	SB
15:48	SEP	A	18	56.7	61.8	69.7	20 N	Midfield entry
16:00	SEP	OF		56.7	64.5	71.7	80 N	185
16:07	SEP	D	18	72.6	82.0	88.1	80 W	NB
16:17	SEP	D	18	54.7	57.4	68.1	65 N	NB turned early
16:19	SEP	D	18	55.7	60.8	66.2	75 W	206
16:23	SEP	D	18	58.6	64.6	73.9	70 E	East
16:29	SEP	D	18	72.7	81.8	86.7	70 W	Beaver
16:32	SEP	D	18	64.0	72.7	82.2	85 E	SB
16:42	SEP	D	18	71.4	78.9	85.3	90	Beaver NB
16:45	---	---	---	64.8	69.6	85.1	---	Track Equipment for Train
16:48	SEP	D	18	72.7	82.4	89.2	75 W	Beaver NB
16:51	SEP	D	18	67.5	75.5	82.1	90	206 SB
16:53	SEP	D	18	72.7	83.7	89.0	75 W	185 NB
17:00	SEP	D	18	67.9	73.8	81.3	75 W	Beaver NB
17:03	SEP	D	18	52.0	54.5	61.9	65 W	Beaver NB

CH2MHILL

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study	Date: 27 Jun 2002
Measurement Location: Ed Craver's House (Site 1)	Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200	
Weather Conditions: Sunny, 65 deg. F, slight breeze	

Time	AC Type	A/D	Rwy	Leq	Lmax	SEL	AZM	Comments
17:09	TEP	D	18	53.6	56.7	63.9	75 W	NB
17:17	SEP	D	18	67.8	76.5	82.1	70 W	Beaver NB
17:18	SEP	D	18	70.1	80.0	86.2	85 E	185 NB
17:21	SEP	OF	---	57.9	62.7	66.3	55W	West
17:25	SEP	D	18	74.9	88.9	93.6	90	Beaver NB
17:27	SEP	D	18	68.1	74.3	83.2	65 W	Beaver NB
17:35	---	---	---	69.0	78.7	90.3	---	Train
17:38	SEP	D	18	68.1	74.4	83.7	75 W	Beaver NB
17:39	SEP	D	18	67.8	74.9	80.6	70 W	Beaver NB
17:41	SEP	D	18	58.8	66.4	70.5	25 N	185
18:01	SEP	D	18	56.7	60.8	75.5	65 N	185 Riverboat (NB) float plane
18:06	SEP	D	18	72.3	78.2	84.5	55 W	206 NB

CH2MHILL

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 25 Jun 2002
Measurement Location: Hunt's Residence @ 2753 Denali (Site 2)								Data by: F. Farhang
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Overcast, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
16:51	SEP	D	18	55.8	60.7	68.4	---	
16:53	SEP	OF		59.6	67.2	77.4	75E	HEADING SE, OVERFLIGHT
17:46	---	---	---	70.7	80.3	87.0	---	PLANES STARTING ENGINES
20:03	---	---	---	64.2	75.4	84.7	---	NB Freight Train

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Hunt's Residence @ 2753 Denali (Site 2)								Data by: F. Farhang
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Overcast, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
9:58	SEP	A	36	85.9	94.9	100.2	---	LANDING FROM SOUTH
10:08	SEP	D	36	74.8	85.0	92.4	---	
10:17	SEP	A	18	57.2	62.9	74.8	---	
10:21	SEP	A	18	60.3	66.4	75.1	---	
10:29	SEP	A	18	56.0	58.9	70.7	60S	W to E to N (OVER FSS)
10:34	SEP	A	18	61.2	66.7	76.3	---	
11:01	SEP	D	18	53.5	56.3	66.6	---	
11:02	SEP	D	18	60.5	68.8	76.9	---	
11:04	TEP	D	18	64.1	71.2	78.2	---	
11:07	TEP	D	18	65.1	71.4	77.7	---	
11:10	SEP	D	18	64.3	72.5	80.4	---	
11:17	SEP	D	18	71.0	79.1	85.8	---	N185FK
11:18	SEP	D	18	70.3	78.5	85.1	---	
11:22	SEP	D	18	55.0	58.5	69.5	---	
11:24	SEP	A	18	62.7	68.2	78.3	---	LEFT TURN ARRIVAL OVER FSS
11:25	SEP	D	18	54.7	57.3	66.1	---	
11:32	SEP	A	18	70.2	78.2	85.9	---	N332DG
11:36	SEP	D	18	66.7	76.3	82.2	---	GREEN (N62187)
11:37	SEP	D	18	67.7	78.2	86.7	---	N121KT (K2)
11:42	SEP	D	18	68.3	78.9	85.9	---	N323KT; Probably combined w/left turn arrival
11:47	SEP	D	18	68.1	76.9	84.1	---	N930IZ
11:48	---	---	---	53.9	60.3	68.4	---	NB Train
11:51	SEP	D	18	80.3	89.0	96.4	---	
11:56	SEP	D	18	77.5	85.8	93.6	---	N9890X
12:00	SEP	D	18	66.1	72.1	79.6	---	N15383
12:08	SEP	D	18	70.7	80.9	89.1	---	N129KT
12:09	SEP	D	18	70.7	78.5	85.2	---	N125KT
12:11	SEP	A	18	58.7	62.6	71.4	90	FROM NW to E to N
12:12	SEP	A	18	59.9	68.0	78.5	60S	MIDFIELD ENTRY OVER FSS

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Hunt's Residence @ 2753 Denali (Site 2)								Data by: F. Farhang
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Overcast, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
12:17	SEP	D	18	68.6	76.8	84.2	---	N8190Y
14:22	SEP	D	18	80.5	90.8	97.5	---	
14:25	SEP	D	18	63.9	71.2	78.6	---	
14:27	SEP	A	18	65.2	71.1	78.9	---	LEFT TURN OVER MIDFIELD
14:28	SEP	D	18	59.1	65.3	74.3	---	
14:31	SEP	D	18	62.3	67.4	76.5	---	STEVE HANSON
14:39	SEP	A	18	64.2	72.3	81.9	---	MIDFIELD ARRIVAL W to E (FSS)
14:46	SEP	D	18	67.6	76.3	83.3	---	185
14:54	SEP	D	18	71.4	81.0	87.5	---	185 (K2)
14:55	SEP	D	18	65.3	74.9	82.5	---	
14:58	TEP	D	18	68.7	80.3	87.1	---	
14:59	SEP	D	18	53.5	57.4	65.2	---	
15:02	SEP	D	18	63.0	71.9	79.6	---	185 (K2)
15:02	SEP	D	18	73.0	86.5	93.1	---	185
15:09	HELI	A	---	58.6	62.3	76.0	---	FROM N/NE ALONG E SIDE OF RUNWAY
15:13	SEP	D	18	73.3	82.5	90.0	---	
15:35	SEP	D	18	61.8	68.7	78.1	---	MIDFIELD ARRIVAL
15:38	SEP	TAXI	---	74.8	86.3	94.8	---	BEAVER
15:40	SEP	D	18	54.5	59.8	65.9	---	N185FK (185)
15:40	SEP	D	18	70.8	81.1	87.8	---	185
15:42	SEP	A	18	55.4	59.8	72.9	---	MIDFIELD ARRIVAL (BEAVER)
15:46	HELI	D	---	58.6	62.4	75.6	---	ALONG THE E SIDE OF RUNWAY TO N/NE
15:49	SEP	A	18	60.1	64.1	76.5	---	MIDFIELD ARRIVAL
16:05	HELI	A	---	58.3	63.1	75.7	---	FROM N/NE ALONG E SIDE OF RUNWAY
16:11	SEP	D	18	79.8	88.7	95.4	---	N890X
16:12	SEP	D	18	66.9	78.1	85.3	---	BEAVER
16:15	SEP	D	18	53.3	55.7	67.9	---	185
16:19	SEP	D	18	71.7	81.0	87.6	---	BEAVER
16:21	SEP	D	18	65.9	74.4	83.2	---	PRECEEDED BY A MIDFIELD ARRIVAL

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Hunt's Residence @ 2753 Denali (Site 2)								Data by: F. Farhang
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Overcast, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
16:34	SEP	MFA		58.7	62.9	74.4	60S	Midfield Arrival Over FSS
16:38	SEP	MFA		57.5	62.7	75.8	60S	Midfield Arrival Over FSS
16:41	SEP	MFA		68.1	80.3	86.3	60S	OVER FSS 2 IN A ROW AND LANDING
16:44	TEP	D	18	64.3	72.3	79.9		N27197
16:57	SEP	D	18	72.1	82.2	88.9		N124KT
17:02	SEP	D	18	65.8	75.7	83.6		BEAVER
17:09	---	---	---	66.8	72.3	81.1	---	NB Train
17:11	SEP	D	18	75.4	90.6	97.3		
17:14	SEP	MFA		57.5	61.1	67.4	75S	BEAVER
17:17	SEP	D	18	72.0	82.9	92.0		BEAVER (N121KT) COMBINED W/TAXIING BEAVER
17:19	SEP	D	18	67.5	77.7	84.9		185 - N1292F
17:20	SEP	D	18	65.2	75.9	83.8		BEAVER - N62197
17:27	SEP	D	18	59.5	64.4	72.7		TO FARTHER S OF RUNWAY
17:30	SEP	D	18	57.3	60.0	71.1		TO FARTHER S OF RUNWAY
17:34	SEP	D	18	61.0	67.6	77.0		TO FROM N EXIT RAMP
17:36	SEP	D	18	77.3	85.2	91.5		185
17:37	SEP	D	18	54.3	56.8	63.6		185 PRECEEDED BY AC ON DOWNWIND E OF RUNWAY
17:39	SEP	D	18	63.5	69.2	77.6		TO FARTHER DOWN RUNWAY 18
17:41	SEP	A	18	57.7	63.7	71.4		SAME AC ON DOWNWINDE E OF AIRPORT
17:43	SEP	D	18	59.4	65.1	71.7		SAME AC TOUCH AND GO ON 18
17:47	SEP	D	18	60.2	64.9	74.4		SAME AC TOUCH AND GO ON 18
17:51	SEP	D	18	58.6	61.2	72.3		SAME AC TOUCH AND GO ON 18
17:52	SEP	A	18	54.3	58.2	67.1		DOWNWIND LEG
17:54	SEP	D	18	63.3	68.3	77.6		SAME AC TOUCH AND GO ON 18

CH2MHILL

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 27 Jun 2002
Measurement Location: Hunt's Residence @ 2753 Denali (Site 2)								Data by: F. Farhang
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Overcast, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
10:20	SEP	D	18	60.7	68.9	79.6	---	185
10:23	SEP	D	18	63.7	71.1	79.3	---	
10:24	HELI	D	---	61.7	65.9	77.2	---	ALONG E OF RUNWAY TO N/NE
10:26	TEP	A	18	69.3	76.8	85.1	---	C-23
10:28	TEP	TAXI		63.8	69.3	83.0	---	C-23
10:30	TEP	D	18	60.6	67.4	79.0	---	C-23
10:32	SEP	A	18	59.9	64.4	74.4	75S	MIDFIELD ENTRY (185)
10:35	SEP	A	18	54.9	57.4	64.7	---	MIDFIELD ENTRY (185)
10:35	SEP	A	18	58.5	62.8	73.1	75S	MIDFIELD ENTRY
10:37	TEP	A	18	69.9	78.4	85.7	---	TWIN OTTER (US ARMY)
10:38	TEP	TAXI	---	63.8	68.8	83.0	---	TAXI AND HOLD @RAMP
10:41	TEP	D	18	60.7	66.3	77.4	---	Army C-23
10:45	TEP	A	18	58.9	64.0	71.5	---	LANDING FROM NW, FOLLOWED BY SEP DEPT @ LAKE
10:48	SEP	A	18	61.1	66.3	77.4	75S	MIDFIELD ENTRY (BEAVER)
11:02	SEP	D	18	80.4	88.3	95.5	---	(180)
11:05	SEP	TAXI	---	51.3	53.6	62.8	---	BEAVER
11:06	SEP	D	18	69.9	79.8	87.9	---	185 - N125KT
11:07	SEP	D	18	51.6	53.0	61.8	---	BEAVER
11:09	SEP	D	18	72.4	79.8	87.1	---	
11:10	TEP	D	18	64.2	71.4	78.2	---	N59870
11:10	SEP	D	18	69.7	76.9	84.2	---	N5246E
11:13	SEP	D	18	74.7	82.3	88.8	---	185
11:14	SEP	D	18	70.2	78.5	85.7	---	185
11:33	TEP	D	18	65.2	70.8	78.1	---	N828KT
11:45	SEP	A	18	61.8	66.6	75.1	---	MIDFIELD ENTRY
12:00	SEP	D	18	57.5	63.8	67.0	---	COMBINED W/HORNS FROM NB TRAIN
12:05	SEP	D	18	77.1	86.6	95.1	---	N9890X
12:07	SEP	D	18	56.4	62.3	71.7	---	N70176
12:16	SEP	D	18	70.5	78.8	85.6	---	TO @ EXIT RAMP - N123PB

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 27 Jun 2002
Measurement Location: Hunt's Residence @ 2753 Denali (Site 2)								Data by: F. Farhang
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Mostly cloudy, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
12:17	SEP	D	18	54.9	59.3	70.7	---	BEAVER N62197
12:19	SEP	D	18	64.6	72.2	79.7	---	N54851
12:21	SEP	D	18	61.8	68.4	76.5	---	N86970
12:22	SEP	A	18	54.5	58.2	67.1	90	MIDFIELD ENTRY
12:27	SEP	A	18	55.7	59.1	69.5	60S	MIDFIELD ENTRY OVER FSS
12:30	SEP	A	18	62.1	70.1	80.9	90	MIDFIELD ENTRY OVER FSS
12:32	SEP	A	18	55.4	59.7	72.8	45S	MIDFIELD ENTRY W/TRAIN HORNS
12:44	SEP	D	18	61.1	65.1	75.6	---	BEAVER N8190Y
12:50	SEP	D	18	61.3	66.8	74.1	---	
16:41	SEP	D	18	67.0	75.0	82.6	---	185
16:49	SEP	D	18	52.6	57.5	68.1	---	
16:52	SEP	D	18	72.2	80.9	88.6	---	
17:00	SEP	D	18	70.0	77.5	85.2	---	185
17:01	TEP	A	18	58.8	64.5	76.0	---	
17:04	SEP	D	18	71.6	81.9	88.4	---	185
17:07	TEP	D	18	61.0	70.4	79.8	---	N59870
17:13	SEP	A	18	61.8	68.3	77.2	90	MIDFIELD ENTRY
17:17	SEP	D	18	70.1	79.2	88.5	---	N1292F
17:18	SEP	D	18	69.1	77.1	84.8	---	N185FK
17:19	SEP	A	18	59.0	64.9	74.4	75S	MIDFIELD ENTRY
17:25	SEP	D	18	67.2	77.3	85.3	---	185 N3320G
17:26	SEP	D	18	68.1	76.3	85.1	---	BEAVER N121KT
17:37	SEP	D	18	68.7	78.0	85.6	---	BEAVER N323KT
17:38	SEP	D	18	64.8	73.0	80.8	---	185 N125KT
17:50	SEP	D	18	79.0	88.6	96.2	---	185
18:01	SEP	D	18	66.2	75.8	82.4	---	N1358A
18:06	SEP	D	18	64.0	71.4	79.2	---	185 N122KT
18:26	SEP	D	18	68.2	78.6	85.1	---	BEAVER N62197

CH2MHILL

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 25 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)								Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Overcast, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
17:05	TEP	OF	---	62.6	68.8	78.0	75 E	Over Chinook Cabins
18:28	SEP	OF	---	50.5	53.0	62.1	---	North
20:03	---	---	---	59.6	73.3	82.3	---	NB Freight Train
20:25	SEP	A	---	53.3	58.0	62.8	75 E	Left Turn on 18
20:29	SEP (2)	OF	---	59.7	64.5	78.7	---	Two AC, one OH, 2nd 75 E
20:49	---	---	---	62.7	75.1	85.5	---	SB Freight Train
20:59	SEP	A	---	60.8	67.4	76.0	---	Var. pitch / Left turn on 18
21:03	SEP	A	---	66.5	75.6	81.1	---	Var. pitch / Left turn on 18

CH2MHILL

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)								Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Partly sunny, 68-70 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
5:51	---	---	---	55.0	60.6	66.5	---	SB Freight Train
9:10	SEP	D	18	60.0	70.4	79.3	30 W	
9:16	SEP	OF		61.7	70.2	81.3	30 W	
9:18	SEP	D	18	51.5	54.3	64.4	30 W	
9:19	SEP	OF		51.3	53.8	64.2	30 W	
9:21	SEP	OF		53.5	57.3	71.1	45 W	
9:22	SEP	D	18	55.5	58.9	69.3	45 W	D18 to OF North
9:32	SEP	OF	---	60.7	67.3	76.3	30 W	D18 to OF North
9:37	SEP	OF	---	65.7	74.4	83.4	30 W	D18 to OF North
9:55	SEP	OF	---	55.9	60.1	71.3	30 W	Heading North
9:58	SEP	D	18	55.2	59.1	69.3	15 E	Taking off to south turn left come back north
10:00	SEP	OF	---	52.9	56.2	65.2	35 W	Heading North
10:08	SEP	D	18	54.1	57.0	65.2	15 E	
10:09	SEP	OF	---	54.1	59.1	70.3	35 W	Heading North
10:18	HEL	OF	---	64.7	69.7	81.1	35 NW	Sounds Mixed Simultaneous flights of Heli and SEP (AZM 90)
10:22	SEP	OF	---	59.5	67.1	78.5	30 W	
10:29	SEP	OF	---	56.5	59.5	70.9	85 E	
10:34	SEP	OF	---	60.2	68.9	77.6	85 E	Car went by as well
10:37	SEP	OF	---	51.5	54.1	64.4	85 E	Man hammering next door
11:02	SEP	OF	---	60.1	67.2	75.4	85 E	
11:05	SEP	D	18	53.2	55.2	66.3	---	
11:08	SEP	D	18	53.4	60.5	68.7	---	
11:10	SEP	OF	---	56.7	62.7	72.9	30 W	
11:12	SEP	D	18	51.7	54.7	65.2	15 E	
11:12	SEP	OF	---	50.6	54.3	63.4	30 W	
11:15	HEL	OF	---	62.4	68.3	79.3	25 E	
11:18	SEP	D	18	52.3	55.8	65.0	15 E	
11:18	SEP	D	18	51.4	54.2	61.1	15 E	
11:20	SEP	OF	---	51.3	54.7	69.8	25 E	

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)								Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Partly sunny, 68-70 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
11:21	SEP	D	18	61.9	69.8	81.3	30 W	
11:23	SEP	OF	---	52.4	56.5	68.1	85 E	Midfield entry
11:24	SEP	OF	---	65.3	78.1	84.4	85 E	Midfield entry
11:33	SEP	D	18	59.4	63.7	73.1	15 E	185 3 Blade Prop
11:34	SEP	OF	---	54.5	57.5	70.0	30 W	Heading North
11:37	SEP	D	18	63.6	76.3	86.1	25 W	Beaver, 185, Train, and Car all at same time. 185 AZM 15E
11:42	SEP	A	18	50.3	52.4	59.2	85 E	Midfield entry/Beaver
11:42	SEP	D	18	56.6	62.4	74.9	15 E	Beaver
11:44	SEP	D	18	52.0	55.3	66.7	25 W	Heading north flew way out
11:48	SEP	D	18	61.0	68.5	81.2	15 E	Beaver (train whistle)
11:50	SEP	D	18	65.2	74.1	80.5	15 E	185
11:51	SEP	OF	---	56.7	65.8	77.0	30 W	185
11:57	SEP	D	18	61.1	67.2	76.2	15 E	185; Table saw in background
11:58	SEP	D	18	59.2	66.3	77.0	30W	Car drove by as well
12:00	SEP	D	18	55.6	59.3	68.4	15 E	
12:08	SEP	D	18	58.4	64.6	80.5	15 E	185
12:12	SEP	D	18	54.8	62.0	73.7	75 E	Midfield entry
12:18	SEP	D	18	50.8	52.3	61.4	15 E	Take off
12:19	SEP	OF	---	56.6	61.6	74.5	30 W	Heading North
12:23	TEP	OF	---	64.9	72.4	81.8	90	Midfield entry (motocycle went by)
12:48	SEP	D	18	51.4	53.6	63.5	15 E	
12:48	SEP	OF	---	51.0	54.4	67.3	30 W	Heading North
12:49	SEP	OF	---	52.0	54.8	67.4	30 W	Heading North
14:17	SEP	D	18	62.9	70.6	83.5	15E - 30W	Beaver
14:22	TEP	OF	---	57.7	63.6	74.8	85 E	Midfield entry
14:23	SEP	OF	---	59.4	69.4	81.0	30 W	185
14:25	SEP	D	18	55.6	61.2	69.8	15 E	SB
14:26	SEP	OF	---	50.6	52.5	59.1	30 W	NB
14:27	SEP	OF	---	58.2	65.0	73.2	85 E	Midfield (Beaver)

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)								Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Mostly cloudy, 68-70 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
14:32	SEP	OF	---	51.2	53.1	64.4	30 W	NB
14:33	SEP	OF	---	50.5	51.9	61.6	30 W	NB
14:34	SEP	DVS	---	68.5	82.8	89.5	OW	Taxiing & Takeoff from Village Strip
14:39	SEP	OF	---	58.1	66.5	77.0	90	Midfield entry (beaver)
14:47	SEP	D	18	57.8	62.8	72.3	15 E	185/Car
14:47	SEP	OF	---	54.3	59.9	72.0	30 W	NB
14:55	SEP	D	18	58.3	63.9	79.0	15 E	Beaver, and 3 185's along with car simultaneously.
14:58	SEP	D	18	58.1	62.1	71.5	15 E	185
14:59	SEP	D	18	57.5	64.2	75.2	15 E	185/Car
15:02	SEP	OF	---	61.2	68.9	77.5	85 E	Midfield entry along with 185 D18 SB AZM 15E
15:03	SEP	D	18	63.6	69.3	83.4	15E-30W	Car drive by along with another SEP midfield entry 80E
15:05	SEP	D	18	50.7	53.5	62.8	30 W	NB
15:10	HELI	---	---	51.7	54.3	62.0	15 E	Sounded like helicopter
15:11	SEP	OF	---	64.2	73.3	80.3	85 E	Midfield entry/Truck
15:12	SEP	OF	---	56.6	62.4	72.6	75 E	Midfield entry and car drive by
15:14	SEP	D	18	57.4	62.2	72.6	15 E	SB
15:15	SEP	DF	---	61.8	68.9	79.0	30W	NB
15:39	SEP	D	18	59.9	67.6	81.7	15E-30W	Three SEP's left D18 Simult.
15:42	SEP	D	18	60.1	67.0	78.9	30 W	185, car and Beaver 85E
15:48	SEP	OF	---	56.7	62.3	74.0	75 E	Midfield entry
15:52	HG	DVS	---	67.0	80.6	87.7	OW-30W	Truck
15:54	HG	OF	---	51.6	55.6	69.6	65 E	Hang Glider
15:58	SEP	OF	---	52.1	55.1	67.9	75 E	Midfield entry
16:04	HELI	OF	---	53.7	56.1	64.2	10 E	
16:08	SEP	OF	---	60.6	67.7	75.6	90	Truck
16:12	SEP	D	18	62.4	75.1	86.3	15E-30W	Beaver and Truck, 185, Beaver – cut in tight
16:20	SEP	D	18	56.7	65.8	76.0	15E-30W	NB
16:22	SEP	D	18	51.9	54.0	62.1	15E-30W	Beaver NB

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 26 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)								Data by: N. Rehm
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Mostly cloudy, 65-68 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
16:22	SEP	D	18	54.4	57.9	65.2	15 E	185 SB
16:23	SEP	OF	---	51.3	54.3	63.2	30 W	185 NB
16:34	SEP	OF	---	54.8	58.1	67.0	70 E	Midfield entry
16:38	SEP	OF	---	61.7	70.1	79.2	90	Midfield entry
16:40	SEP	OF	---	60.0	72.4	82.8	85 E	Midfield entry, truck, train (70dB), bus and car
16:43	---	---	---	54.5	59.8	68.2	---	Train - 68dB/Whistle
16:44	SEP	D	18	56.1	61.1	69.8	15E-30W	
16:55	---	---	---	54.8	65.9	78.7	---	Train - 4 min duration
16:59	SEP	D	18	53.2	62.2	65.7	15E-30W	
17:01	---	---	---	65.3	74.4	75.8	---	Train - 74dB/Whistle
17:01	---	---	---	53.4	56.3	71.3	---	Train (drone)
17:02	SEP	D	18	57.0	63.3	78.3	15E-30W	Beaver/Truck
17:08	---	---	---	65.7	75.3	82.4	---	Train - 75dB/Whistle
17:12	SEP	D	18	58.4	69.0	80.7	15E-30W	2 SEP's Hang glider OF - 90 headed NW
17:18	SEP	D	18	62.6	76.4	87.0	15E-30W	Beaver, 185 SB to NB, 185, truck, beaver, beaver midfield entry 85E, 185 SB to NB
17:23	SEP	D	18	58.1	61.7	72.5	15 E	185 SB
17:27	SEP	D	18	56.0	59.1	65.9	15 E	185 SB
17:30	SEP	D	18	50.8	53.0	62.9	15 E	185 SB
17:35	SEP	D	18	61.0	69.1	80.6	15E-	185 SB - NB
17:37	SEP	D	18	52.1	56.1	67.2	15 E	185 SB
17:38	SEP	D	18	56.3	64.7	75.8	15 E	185 SB
17:39	SEP	D	18	59.2	66.9	74.7	15 E	185 SB
17:41	SEP	D	18	50.1	52.5	59.4	15 E	NB?
17:43	SEP	D	18	60.4	67.3	74.3	15 E	185 SB
17:44	SEP	OF	---	51.9	55.8	67.0	25 E	NB?
17:47	SEP	D	18	62.6	67.4	77.5	15 E	SB NB
17:51	SEP	D	18	61.5	65.0	76.0	15 E	SB NB
17:55	SEP	D	18	62.7	67.8	76.7	15 E	SB NB

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 27 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)								Data by: KRW
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Sunny, 68-70 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
10:21	SEP	D	18	63.8	72.5	82.7	60	SB NB
10:23	SEP	OF	---	58.7	75.1	89.0	90	EB (High) recorded 17.35 min duration along with another SEP OF SEB
10:44	SEP	D	36	57.2	62.5	67.6	---	To north - didn't come over house
10:47	SEP	OF	---	60.1	65.9	74.6	90	SE – B
10:48	SEP	A	---	57.4	62.5	74.5	75 NE	SE – B
11:03	SEP	D	18	60.0	65.2	77.0	60 E S W	SB NB (circled around)
11:07	SEP	D	18	58.7	66.9	78.6	60 E S W	2 planes & chainsaw SB NB
11:10	SEP	D	18	59.9	67.0	75.6	60 E S W	SB NB
11:11	SEP	D	18	50.5	52.8	64.4	45 E S W	SB NB
11:14	SEP	D	18	57.0	63.0	72.7	30 E S W	SB NB
11:20	SEP	OF	---	50.8	54.6	65.6	60 W	
11:29	SEP	D	18	50.2	53.8	60.0	60 E, S, W	
11:46	SEP	OF	---	54.2	58.0	69.6	60 E	SB
12:00	---	---	---	58.5	64.5	69.2	---	NB Train whistle
12:01	---	---	---	52.0	55.8	71.9	---	NB Train
12:06	SEP	D	18	63.6	74.5	83.6	60 E S W	SB NB & truck (sounded like 2 planes)
12:13	HELI	---	---	62.9	69.3	78.8	75 E	NW – B Helicopter
12:16	SEP	OF	---	52.2	55.6	65.7	90	From NW - SE no turns
12:17	SEP	D	18?	60.7	69.4	80.2	60 E S W	SB – NB
12:20	SEP	OF	---	63.7	71.8	82.5	60 S W	From SE - NW & train whistle
12:21	SEP	OF	---	57.5	60.7	72.2	60 S W	
12:22	SEP	OF	---	51.1	53.5	62.1	60 E S W	From N - SE – NW
12:22	---	---	---	61.0	66.3	68.8	---	Train Whistle
12:27	SEP	OF	---	59.8	65.9	74.1	90	From NW - SE-B, no turns
12:28	SEP	OF	---	54.6	57.5	65.0	45 N	From W - E, Past site
12:29	SEP	OF	---	51.6	54.1	61.5	90	From NW - SE-B
12:30	---	---	---	58.2	63.0	69.6	---	Train Whistle
12:31	SEP	OF	---	61.6	70.2	78.8	90	From NW - SE-B, no turns

Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 27 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)								Data by: KRW
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Sunny, 68-70 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
12:32	SEP	OF		60.2	70.2	78.7	90	From NW - SE-B, no turns
12:40	SEP	OF		51.2	52.7	59.9	90	From NW - SE, no turns
12:41	SEP	OF		63.2	70.4	81.6	90	From NW - SE, no turns
12:46	SEP	OF		56.8	62.8	74.5	60 E S W	From N to NW
12:48	SEP	OF		61.0	66.2	76.8	90	From S - N, no turns
12:50	SEP	OF		61.8	69.0	76.8	60 W	From S - N, no turns
12:55	SEP	D	18	55.3	60.9	69.7	60 E S W	SB - NB
12:56	SEP	---	---	54.2	59.4	71.6	60 E	Same plane as above & new plane heard to East
13:02	SEP	D	18	53.9	57.3	64.9	60 E S W	SB - NB
13:03	SEP	---	---	56.8	63.2	77.5	60 E S W	SB - NB
13:08	SEP	D	18	52.5	58.0	66.2	60 E	SB - NB
13:09	SEP	D	18	53.3	59.5	71.8	60 E	SB - NB
13:11	SEP	D	18	56.9	62.8	74.1	60 E S W	SB - NB
13:12	SEP	D	18	49.0	50.5	57.1	60 E S W	SB - NB
13:12	SEP	D	18	60.7	66.2	75.5	60 E S W	SB - NB
13:13	SEP	D	18	53.2	56.7	68.8	60 E S W	SB - NB
13:19	SEP	OF	---	51.1	52.7	58.9	90	From NW - SE
14:43	SEP	OF	---	59.2	65.5	74.2	90	From NW - SE, no urns/Car
14:46	SEP	D	18	51.7	55.7	65.0	60 E S W	SB - NB same plane as above
14:51	SEP	OF	---	52.4	56.2	67.1	90	From NW - SE, No turns
14:55	SEP	OF	---	59.5	64.5	74.3	75 N	Fron NW - SE, No turns
15:00	SEP	OF	---	58.2	63.5	75.6	60 E S W	SB - NB w/chainsaw
15:06	SEP	OF		65.8	76.7	84.4	90	SB - NW - B
15:12	SEP	OF		57.9	63.0	78.1	60 S W	SB - NB w/hammer, saw, scooter
15:24	SEP	OF		57.3	65.4	78.2	60 S W	Two planes headed North
15:29	SEP	OF		59.6	65.7	77.0	60 S W	SB - NB same plane as above
15:30	SEP	OF		59.1	69.1	77.8	90	From NW - SE

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study	Date: 27 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)	Data by: KRW
Equipment: LDL 824/2560, LDL CA-200	
Weather Conditions: Partly cloudy, 68-70 deg. F, slight breeze	

Time	AC Type	A/D	Rwy	Leq	Lmax	SEL	AZM	Comments
15:48	SEP	OF	---	60.8	69.5	76.5	75 NE	From NE - SW
16:01	SEP	OF	---	52.1	56.2	62.3	---	Plane to S heading E
16:04	HELI	D	---	63.1	68.7	78.9	75 N	From SE - NW
16:08	SEP	D	18	56.7	62.8	73.0	45 E S W	SB - NB
16:09	SEP	D	18	53.9	60.6	70.6	45 E S W	2 events
16:17	SEP	OF	---	65.6	75.9	84.0	90	From East directly over to West then North
16:19	SEP	OF	---	56.7	64.5	78.3	75 N	NW - SE, along with another SEP D18 Sb to NB
16:23	SEP	OF	---	52.6	56.8	69.9	---	Plane to East flying South
16:28	SEP	D	18	52.6	56.4	71.2	60 E S W	SB - NB
16:35	SEP	OF	---	51.1	56.2	68.9	---	Plane in East flying South (very short)
16:37	SEP	OF	---	56.5	66.9	80.4	75 N	From NW to SE, SEP OF 90, Heli A 75E
16:42	SEP	D	18	57.4	69.1	78.8	60 E S W	SB - NB
16:48	SEP	D	18	61.5	68.5	82.6	45 E S W	SB – NB
16:52	SEP	D	18	58.0	69.6	81.1	45 E S W	SB - NB
17:01	SEP	OF	---	54.8	61.4	74.4	90	From NW - SE, and SEP OF <45W flew in W then N
17:05	SEP	OF	---	57.3	66.8	77.1	45 E S W	SB - NB
17:09	SEP	OF	---	53.8	60.4	72.4	60 N	From NW - SE
17:23	SEP	---	---	54.9	58.6	74.3	---	Plane taxiing on village strip , no takeoff or landing
17:25	SEP	D	18	56.7	65.1	75.0	45 E S W	two SEP's SB - NB
17:27	SEP	D	18	57.1	66.6	78.8	---	SB - NB
17:37	SEP	A	18	58.8	71.2	81.6	90	From West to Airport, along with two other SEP's D18 45 E, SB to NB
17:41	SEP	OF	---	66.6	77.2	83.4	90	From NW - SE
17:42	SEP	OF	---	56.8	62.1	70.7	90	From NW - SE
17:51	SEP	D	18	61.4	70.2	81.9	45 E S W	SB - NB w/truck
17:59	SEP	OF		52.8	57.1	71.2	90	From NW - SE
18:01	SEP	D	18	64.5	74.4	83.0	45 E S W	SB – NB
18:09	SEP	D	18	56.8	61.9	71.9	45 E S W	SB – NB

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 27 Jun 2002
Measurement Location: Bob Gurlac's Residence (Site 3)								Data by: KRW
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Mostly sunny, 65 deg. F, wind ~ 5 mph								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
18:19	SEP	OF	---	54.5	59.6	68.6	45 W	Plane to West flying North, w/cars
18:23	HELI	---	---	52.1	57.6	69.9	---	Helicopter to East, didn't fly over site
18:27	SEP	D	18	61.3	71.6	81.5	45 E S W	SB - NB
18:36	SEP	D	18	53.4	58.7	68.7	45	SB - NB
18:40	HELI	---	---	52.2	55.5	63.7	---	Heard in East, then flew farthur
18:43	SEP	OF	---	57.6	63.7	73.0	75 N	From NW - SE
18:45	SEP	OF	---	60.5	66.1	75.2	90	From NW - SE
18:48	SEP	OF	---	60.4	67.4	77.0	90	From NW - SE
19:02	SEP	OF		50.6	51.8	61.8	60 N	From NW - SE
19:03	SEP	D	18	62.7	70.9	83.1	45 E S W	SB - NB

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Aircraft Noise Level Data

Project: Talkeetna Airport Noise Study								Date: 25 Jun 2002
Measurement Location: Jacque's Residence (Site 4)								Data by:
Equipment: LDL 824/2560, LDL CA-200								
Weather Conditions: Mostly cloudy, 65 deg. F, slight breeze								
Time	**AC Type**	**A/D**	**Rwy**	**Leq**	**Lmax**	**SEL**	**AZM**	**Comments**
18:28	SEP	OF	---	50.7	54.0	61.5	65W	
18:28	SEP	A	36	57.9	66.5	74.8	35E	
26 Jun 2002								
7:06	SEP	D	36	62.6	69.8	76.3	90	
9:59	SEP	D	36	70.8	79.8	85.8	45E	
10:08	SEP	D	36	70.0	79.7	87.0		
10:18	SEP	A	18	61.3	67.7	73.5		
10:20	SEP	A	18	54.6	59.3	67.0		
10:29	SEP	A	18	52.8	55.2	63.6		
10:36	SEP	A	18	54.8	58.8	66.7		

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Appendix C
Hourly Noise Level Summaries

C-1
Measured Hourly Leq and DNL Values (dB)
Site 1: Ed Craver's Residence

Hour	25-Jun-02	26-Jun-02	27-Jun-02	28-Jun-02
0:00	---	57.2	56.9	40.2
1:00	---	58.5	46.3	37.9
2:00	---	47.3	52.7	37.5
3:00	---	39.0	47.5	41.1
4:00	---	67.0	61.6	39.3
5:00	---	60.2	55.9	39.1
6:00	---	46.9	49.8	63.9
7:00	---	46.5	53.8	---
8:00	---	61.7	57.0	---
9:00	---	67.1	67.5	---
10:00	---	56.1	62.8	---
11:00	---	70.9	74.7	---
12:00	---	63.1	64.7	---
13:00	65.6	65.0	66.5	---
14:00	61.5	66.0	67.5	---
15:00	61.6	64.2	63.2	---
16:00	63.0	60.7	60.8	---
17:00	62.7	67.2	63.8	---
18:00	59.1	62.2	59.0	---
19:00	63.0	55.2	56.8	---
20:00	70.9	52.6	73.5	---
21:00	56.0	73.0	45.6	---
22:00	52.5	60.3	43.1	---
23:00	56.8	61.1	61.5	---
DNL	---	68.2	67.0	---

Data include noise from other community noise sources.

C-2
Measured Hourly Leq and DNL Values (dB)
Site 2: Hunt's Residence

Hour	25-Jun-02	26-Jun-02	27-Jun-02	28-Jun-02
0:00	---	39.1	58.5	35.8
1:00	---	39.9	50.6	31.4
2:00	---	27.9	47.2	39.5
3:00	---	31.1	48.4	30.7
4:00	---	40.5	44.5	35.6
5:00	---	37.9	49	37.1
6:00	---	40.8	51.9	33.4
7:00	---	51.7	51.1	46.9
8:00	---	61.7	58.5	60.6
9:00	---	66.5	67.5	---
10:00	---	57.2	59.3	---
11:00	---	64.6	62.4	---
12:00	---	58.8	61.4	---
13:00	---	67.4	62.7	---
14:00	---	64	60.9	---
15:00	---	64.1	61.7	---
16:00	---	62.6	60.9	---
17:00	55.3	64.5	63.4	---
18:00	53.5	62.9	55.3	---
19:00	62.7	62.9	63.4	---
20:00	54.5	49.2	55.3	---
21:00	40.3	53.3	45.0	---
22:00	55.7	58.4	47.7	---
23:00	57.6	58.7	54.6	---
DNL	---	62.7	61.9	---

Data include noise from other community noise sources.

C-3
Measured Hourly Leq and DNL Values (dB)
Site 3: Bob Gurlack's Residence

Hour	25-Jun-02	26-Jun-02	27-Jun-02	28-Jun-02
0:00	---	42.9	61.7	38.6
1:00	---	45.9	53.4	38.2
2:00	---	40.9	52.3	41.6
3:00	---	42.9	53.0	44.6
4:00	---	48.5	53.7	38.9
5:00	---	49.6	56.0	39.9
6:00	---	41.0	58.7	38.5
7:00	---	50.5	50.3	47.6
8:00	---	50.2	49.5	---
9:00	---	52.9	50.7	---
10:00	---	51.2	56.0	---
11:00	---	56.4	51.2	---
12:00	---	51.4	55.5	---
13:00	---	57.0	51.9	---
14:00	57.6	56.8	53.9	---
15:00	64.2	56.2	54.2	---
16:00	54.2	54.5	55.9	---
17:00	51.1	56.2	55.3	---
18:00	55.6	53.3	52.9	---
19:00	55.8	51.4	54.9	---
20:00	55.5	51.0	57.7	---
21:00	49.5	55.7	50.9	---
22:00	48.7	53.3	46.8	---
23:00	47.9	62.9	50.8	---
DNL	---	60.7	62.2	---

Data include noise from other community noise sources.

C-4
Measured Hourly Leq and DNL Values (dB)
Site 4: Jacque's Residence

Hour	25-Jun-02	26-Jun-02	27-Jun-02	28-Jun-02
0:00	---	30.9	56.7	37.0
1:00	---	29.1	44.8	34.7
2:00	---	27.6	42.2	34.0
3:00	---	27.1	43.9	34.2
4:00	---	28.8	35.1	35.3
5:00	---	31.0	40.4	34.8
6:00	---	33.4	36.2	34.1
7:00	---	47.7	43.8	39.0
8:00	---	54.9	53.1	66.4
9:00	---	50.7	58.4	41.1
10:00	---	52.6	46.6	---
11:00	---	45.2	40.3	---
12:00	---	47.3	48.1	---
13:00	---	49.7	44.4	---
14:00	---	50.1	49.9	---
15:00	---	51.4	46.1	---
16:00	---	51.7	52.1	---
17:00	---	51.9	50.8	---
18:00	---	50.8	50.4	---
19:00	45.8	50.3	52.4	---
20:00	55.7	46.5	50.7	---
21:00	38.4	39.3	44.2	---
22:00	53.9	42.8	45.9	---
23:00	31.5	61.7	44.8	---
DNL	---	58.4	55.3	---

Data include noise from other community noise sources.

Appendix D
Development of Flight Operations Data at Talkeetna Airport

Development of Flight Operations Data at Talkeetna Airport

PREPARED FOR: Don Baxter, P.E.

PREPARED BY: Steve Cinelli, P.E.

COPIES: Dave Coolidge, P.E.

Farshad Farhang

DATE: September 10, 2002

Introduction

The purpose of this memo is to outline CH2M HILL's approach to developing the aircraft flight operations data to be used for creating noise contours at Talkeetna Airport (TKA) using the Integrated Noise Model (INM). Generation of INM noise contours requires such information as aircraft flight tracks and the number of operations by aircraft type assigned to the flight tracks on a daily basis. The goal of the noise study is to evaluate existing and future community noise exposure in the environs of TKA. Exhibit 1 shows the community, existing land use, and sensitive receivers.

Task 2 of the Statement of Services requires that noise contours be generated for the existing annual average day and the existing peak-season average day. Task 2 also requires that future noise contours be modeled using three different heliport alternatives: no action, the northeast heliport site, and the southeast heliport site (Exhibit 2). For each heliport alternative, future noise contours for both annual average day and peak-season day will be developed.

Since a significant amount of original analysis was required to develop the aircraft flight operations information required for the noise modeling, we are requesting that the Alaska Department of Transportation and Public Facilities (DOT&PF) and Federal Aviation Administration (FAA) review and approve the data and analysis in this memo before we complete the noise modeling tasks.

Basic Assumptions

Since there is currently a limited amount of raw data related to daily aircraft operations at TKA, developing daily aircraft operations numbers requires several key assumptions. These assumptions are as follows:

- The peak season consists of the last 2 weeks of May, all of June and July, and the first 2 weeks of August, for an approximate total of 90 days.
- 80 percent of the total annual operations occurs during the peak season.

- The remaining 20 percent of the total annual operations occurs during the off season, from mid-August to mid-May, for a total of 275 days.
- Due to prevailing winds, 90 percent of the operations occurs on Runway 18, and 10 percent occurs on Runway 36 during the peak season.
- During the off season, 90 percent of the operations occurs on Runway 36, and 10 percent occurs on Runway 18.
- All of the Part 135 traffic is destined for Denali and will arrive from Denali.
- All of the general aviation (GA) traffic is destined for Anchorage or other locations south of TKA and will arrive from the east.
- The raw data used in the analysis are the annual operations data contained in the Talkeetna Airport Master Plan (AMP).
- All existing and future helicopter operations occur during the peak season.
- Future helicopter flight tracks are designed to avoid conflicts with fixed-wing aircraft. We have assumed wind conditions will not affect future helicopter operations.
- All military operations are helicopter operations.
- One percent of all the operations occurs after 10:00 p.m.

These assumptions are based on information contained in the Talkeetna AMP, anecdotal data gathered from the FAA Talkeetna Flight Service Station (FSS) staff and DOT&PF staff, and observations made while collecting noise data in the field.

Fixed-Wing Analysis

The existing-condition noise contours will be modeled using year 2000 operations data contained in the Talkeetna AMP and assigned to actual flight tracks observed while conducting field noise measurements during the peak season (late June 2002). The future noise contours will be modeled based on year 2015 forecasted operations contained in the Talkeetna AMP and assigned to the future Runway 18 right-hand traffic pattern and the Runway 36 left-hand traffic pattern.

Fixed-Wing Flight Tracks

The existing fixed-wing flight tracks were developed using anecdotal information gathered from the Talkeetna FSS staff and DOT&PF staff, as well as observations made while collecting noise data in the field. Since these tracks represent actual aircraft operations, the dimensions and locations of the traffic patterns may vary from the standard airport traffic patterns outlined in FAA Order 7400.2E, *Procedures for Handling Airspace Matters*, and the Aeronautical Information Manual (AIM). Additionally, a few individual pilots may or may not be following procedure method in the AIM.

Existing Fixed-Wing Flight Tracks

Both Runway 18 and Runway 36 have standard left-hand traffic patterns. Aircraft that are destined for Denali depart to the south and execute a right-hand turn over the Susitna River. On approach to Runway 18, this traffic often completes a mid-field entry and flies the standard left-hand pattern. Exhibit 3 depicts the observed existing flight tracks that will be used to create the existing noise contours.

Future Fixed-Wing Flight Tracks

The future fixed-wing flight tracks consist of a left-hand traffic pattern on Runway 36 and right-hand traffic pattern on Runway 18. The noise contours will account for all fixed-wing aircraft flying these patterns in accordance with Federal Aviation Regulation Part 91.127. However, the dimensions of the traffic patterns do not conform to FAA standards outlined in *Procedures for Handling Airspace Matters*, and the AIM. It is anticipated that the dimensions of the future patterns will be similar to the dimensions of the existing patterns. Therefore, the model for future conditions will include flight tracks of approximately the same dimensions and locations as existing flight tracks.

Assigning Operations Data to Flight Tracks

Although a variety of flight tracks is used to and from TKA, the majority of the traffic departing TKA is either southbound toward Anchorage or westbound toward Denali. Furthermore, much of the traffic destined for Anchorage is GA, and much of the traffic destined for Denali is Part 135. Although some GA traffic is destined for Denali, and some Part 135 traffic is destined for Anchorage, accurately estimating these numbers would be difficult. To develop reliable estimates, we have assumed that all of the Part 135 traffic at TKA is destined for Denali and all of the GA traffic is departing southbound towards Anchorage. Using these basic assumptions, operations numbers are assigned to the identified flight tracks.

Annual and Daily Aircraft Operations Data

The Talkeetna AMP contains existing operations data and those forecasted on an annual basis. Table 1 reproduces this information for the existing (year 2000) and future (year 2015) conditions.

TABLE 1
Annual Aircraft Operations, Talkeetna Airport

	Year	
Type	2000	2015
Part 135	15,900	33,100
General Aviation	7,200	9,900
Military Helicopter	500	500
Civil Helicopter	2,620	4,430
Total Operations	26,200	47,930

Source: *Talkeetna Airport Phase One Report*, 1997.

To complete the noise modeling, these data need to be reduced to the number of daily operations under existing and future average annual and peak-season scenarios. Furthermore, the number of operations for each scenario need to be assigned to specific flight tracks.

Peak-Season Fixed-Wing Operations

Peak-season operations were estimated assuming that 80 percent of the traffic at TKA occurs during the peak season, as outlined in the Talkeetna AMP. Table 2 summarizes these data for both Part 135 and GA traffic.

TABLE 2
Total Peak-Season Fixed-Wing Aircraft Operations

	Year	
Type	**2000**	**2015**
Part 135	12,720	26,480
General Aviation	5,760	7,920

Traffic must then be assigned to each flight track during the peak season. To correctly assign operations data to each flight track, the number of departures is determined, as opposed to the total number of operations (Table 2). Assuming that operations occur in pairs (for each departure there is one landing), the number of departures can be calculated by dividing the number of total operations by two. These data are summarized in Table 3.

TABLE 3
Peak-Season Fixed-Wing Departures

	Year	
Type	**2000**	**2015**
Part 135	6,360	13,240
General Aviation	2,880	3,960

Anecdotal evidence indicates that approximately 90 percent of the traffic uses Runway 18 during the peak season, a 90-day period from mid-May to mid-August. This is supported by additional anecdotal evidence that the predominant winds are from the south during summer. Table 4 summarizes the number of departures on Runway 18, for both the entire peak season and on a peak-season average day.

The peak-season average-day data shown in Table 4 represent operational data necessary to develop noise contours. *Table 4 contains both the existing and future peak-season numbers for departures on Runway 18.*

TABLE 4
Total/Average-Day Departures—Runway 18

	Year	
Type	2000 (total/average day)	2015 (total/average day)
Part 135	5,724 / 64	11,916 / 132
General Aviation	2,592 / 29	3,564 / 40

Based on the anecdotal evidence used to develop Table 4, the number of departures on Runway 36 during the peak season is 10 percent of total peak-season departures. Table 5 summarizes the number of operations on Runway 36, for both the entire peak season and on a peak-season average day.

TABLE 5
Total/Average-Day Departures—Runway 36

	Year	
Type	2000 (season/average day)	2015 (season/average day)
Part 135	636 / 7	1324 / 15
General Aviation	288 / 3	396 / 4

The peak-season average-day data shown in Table 5 represent operational data necessary to develop noise contours. *Table 5 contains both the existing and future peak-season departure numbers for Runway 36.*

Annual Average-Day Operations

Annual average-day operations help assess the effect that the seasonal peaking of air traffic has on community noise exposure. Noise contours developed using operations numbers for the annual average day night noise level represent community noise exposure if aircraft operations were evenly distributed throughout the year, which is the condition typically modeled in airport noise studies. Our approach to developing the average annual operations data is to develop the operations data for the off season, and then add them to the peak-season data. This methodology allows us to accurately assign aircraft operations to specific flight tracks.

The number of daily operations during the off season were calculated assuming that 20 percent of the forecasted annual operations at TKA occur from mid-August to mid-May. Table 6 summarizes the number of off-season operations.

TABLE 6
Total Off-Season Operations

	Year	
Type	2000	2015
Part 135	3,180	6,620
General Aviation	1,440	1,980

Traffic must then be assigned to each flight track during the off season. Table 6 represents the total number of off-season operations at TKA. As explained previously, the number of departures can be calculated by dividing the number of total operations by two. These data are summarized in Table 7.

TABLE 7
Total Off-Season Departures

	Year	
Type	2000	2015
Part 135	1,590	3,310
General Aviation	720	990

Anecdotal evidence indicates that approximately 90 percent of air traffic uses Runway 36 during the winter. This is supported by additional anecdotal evidence that the predominant winds are from the north during offseason. Table 8 summarizes the number of departures on Runway 36 for the entire offseason and the average off-season day.

TABLE 8
Off-Season Departures, Runway 36

	Year	
Type	2000 (season/average day)	2015 (season/average day)
Part 135	1,431 / 5.2	2,979 / 10.8
General Aviation	648 / 2.4	891 / 3.2

The information in Table 8 represents operational data necessary to develop noise contours. *Table 8 contains both the existing and future off-season departures on Runway 36.*

Based on the anecdotal evidence used to develop Table 8, the number of departures using Runway 18 during the peak season is 10 percent of the total off-season departures. Table 9 summarizes the number of departures on Runway 18 for the off season.

TABLE 9
Off-Season Departures, Runway 18

	Year	
Type	2000 (season/average day)	2015 (season/average day)
Part 135	159 / 0.6	331 / 1.2
General Aviation	72 / 0.3	99 / 0.4

The information in Table 9 represents operational data necessary to develop noise contours. *Table 9 contains both the existing and future-off season departures on Runway 18.*

To obtain the total airport annual average-day departures, it is necessary to add the peak-season data (Tables 4 and 5) and off-season data (Tables 8 and 9), then divide by 365. Tables 10 and 11 summarize these data.

TABLE 10
Annual Departures, Runway 18

	Year	
Type	2000 (annual/average day)	2015 (annual/average day)
Part 135	5,883 / 16	12,247 / 34
General Aviation	2,664 / 7	3,663 / 10

TABLE 11
Annual Departures, Runway 36

	Year	
Type	2000 (annual/average day)	2015 (annual/average day)
Part 135	2,067 / 6	4,303 / 12
General Aviation	936 / 3	1,287 / 4

The dimensions and locations of the flight tracks are shown on Exhibits 3 and 4. Exhibits 5, 6, 7, and 8 illustrate specific flight tracks and the number of operations assigned to each.

These exhibits are schematic only and are meant to clarify how the operations data have been assigned.

Fixed-Wing Fleet Mix

The fixed-wing fleet mix at TKA consists primarily of single-engine light aircraft. The FAA's aircraft registration database indicates that 77 fixed-wing aircraft were registered to Talkeetna addresses during August 2002. Of these, 27 appeared to be owned by Part 135 operators, and 50 appeared to be owned by individuals. Three piston engine twins are registered to Talkeetna owners.

For light aircraft, the INM distinguishes primarily between aircraft equipped with fixed-pitch propellers and those equipped with variable-pitch propellers. Specific modelsof aircrafts listed in the FAA database are assigned either to type propeller based on aircraft engine horsepower. The specific model of the three twin-engine propeller aircraft, the Piper PA-31 Navajo, will be accounted for in the noise contours. Since the Talkeetna AMP does not forecast a significant change in the future fleet mix at TKA, both the existing and future fleet mix percentages will be identical in the noise contours. The existing and future fixed-wing fleet mix is shown in Table 12. This fleet mix will likely result in conservative, yet realistic, noise contours.

TABLE 12
Existing and Future Fixed-Wing Fleet Mix

	Fixed-Pitch	Variable-Pitch	Twin-Engine
Part 135	22%	67%	11%
General Aviation	86%	14%	0%

The percentages of aircraft shown in Table 12 will be assigned to the number of aircraft operations in the noise contours. For instance, 86 percent of the GA operations will be assigned to aircraft equipped with fixed-pitch propellers, and 14 percent of GA operations will be assigned to aircraft equipped with variable-pitch propellers. This distribution will be evenly applied to all the identified flight tracks.

Helicopter Analysis

Helicopter operations data, for both existing and future cases, were obtained from the Talkeetna AMP. The existing helicopter flight tracks used by civil helicopters were observed during the field noise measurements. During the onsite noise survey, military helicopters did not visit TKA. The future helicopter flight tracks were developed to avoid conflicts with the flow of future fixed-wing traffic. We have assumed that prevailing wind conditions will not affect future helicopter flight tracks.

Existing and Future Helicopter Flight Tracks

The existing helicopter flight tracks were developed based on observations gathered while collecting noise data in the field. Future helicopter flight tracks were developed assuming that helicopters would approach the proposed heliports at or below 500 feet above ground level. For the southeast heliport site, helicopters would fly a straight-in approach from the south, with the departure being the reverse of this path. For the northeast heliport site, the approach track would be straight in from the north, with the departure being the reverse of this track. Exhibit 3 shows the existing helicopter flight tracks, and Exhibit 4 shows future helicopter flight tracks for each heliport alternative.

Assigning Operations Data to Flight Tracks

As with fixed-wing traffic, existing and future helicopter traffic can be assigned to flight tracks based on type of helicopter and expected destination. Much of the military helicopter traffic at Talkeetna is destined for training and rescue operations on Denali, as is the Eurocopter 315 Lama used by the National Park Service (NPS). Since the NPS does not permit helicopter landings within Denali National Park and Preserve, much of the civil helicopter flightseeing operations are destined for glaciers and other attractions east of Talkeetna. Therefore, all existingNPS and military helicopter traffic is assumed to depart to and arrive from the west. All of the existing helicopter flightseeing traffic is assumed to depart to the east, across the runway, and then turn to the north.Arrivals will be the reverse of this same

The future operations data will be assigned such that the southeast alternative has all operations arriving from and departing to the south, and the northeast alternative has all operations arriving from the north and departing to the north.

Helicopter Operations

Anecdotal evidence indicates that the vast majority of helicopter operations occurs during peak season. Helicopter operations during the off season are infrequent enough to have negligible effect on the noise contours. Therefore, for the purposes of the noise contours, we are assuming that all helicopter operations occur during the peak season. However, helicopter operations must still be assigned to flight tracks for both the peak-season model and the average annual model.

The AMP forecasts have been used to estimate helicopter activity. Table 13 summarizes the annual helicopter departures at TKA. These numbers were calculated by dividing the total number of helicopter operations by two.

TABLE 13
Total Helicopter Departures

	Year	
Type	2000	2015
Military Helicopter	250	250
Civil Helicopter	1,310	2,215

Source: *Talkeetna Airport Phase One Report*, 1997, and CH2M HILL analysis.

Since all helicopter operations are assumed to occur during the peak season, and effects of prevailing wind on helicopter operations are not taken into consideration in this analysis, the data in Table 13 represent both peak-season and annual helicopter departures. Table 14 contains both peak-season average-day and annual average-day operations data.

TABLE 14
Total Average Daily Helicopter Departures

	Year	
Type	2000 (average peak season/ average annual)	2015 (average peak season/ average annual)
Military Helicopter	2.8 / 0.7	2.8 / 0.7
Civil Helicopter	14.5/3.6	24.6.6.1

Exhibits 9 and 10 illustrate existing and future flight tracks and the number of operations assigned to each. These exhibits are schematic only and are meant to clarify how the operations data have been assigned. The actual dimensions and locations of the flight tracks are shown on Exhibits 3 and 4.

Helicopter Fleet Mix

Information on the existing and future fleet mix at TKA is summarized in Table 15[1]. Since the Talkeetna AMP does not forecast a significant change in the future fleet mix at Talkeetna, both the existing and future fleet mix will be identical in the noise contours.

TABLE 15
Existing and Future Helicopter Fleet Mix

	Eurocopter 315 Lama	Bell 206 Jet Ranger/Eurocopter 350 ASTAR	CH-47 Chinook
Military Helicopter	0%	0%	100%
Civil Helicopter	50%	50%	0%

The percentages of helicopters shown in Table 15 will be assigned to the number of helicopter operations for modeling noise in the same manner used for the fixed-wing fleet.

[1] Since the CH-47 Chinook is the largest and noisiest helicopter that is in the military fleet at Talkeetna, we have assumed that all of the military operations are Chinook operations. Additionally, all of the civil operations will be accounted for as ASTAR when the noise contours are developed. Both of these assumptions will result in conservative noise contours.

Summary and Conclusions

The final operations data that will be used for the noise contours, for both fixed-wing and helicopter activity, are summarized in Table 16.

TABLE 16
Flight Operations Data Summary

Peak Season	2000 (Part 135/GA)	2015 (Part 135/GA)
Fixed-wing departures per day		
Runway 18	64 / 29	132 / 40
Runway 36	7 / 3	15 / 4
Helicopter departures per day		
Military helicopter	2.8	2.8
Civil helicopter	14.5	24.6
Annual	2000	
Fixed-wing departures per average day		
South wind (Runway 18)	16/ 7	34 / 10
North wind (Runway 36)	6 / 3	12 / 4
Helicopter departures per day		
Military helicopter	0.7	0.7
Civil helicopter	3.6	6.1

Table 17 summarizes fleet mix information for both fixed-wing aircraft and helicopters that will be used in the noise contours. The existing and future fleet mix are assumed to be identical.

TABLE 17
Fleet Mix Information Summary

Fixed-Wing	Fixed-Pitch	Variable-Pitch	Twin-Engine
Part 135	22%	67%	11%
General aviation	86%	14%	0%

Helicopter	Eurocopter 315 Lama	Bell 206 Jet Ranger/ Eurocopter 350 ASTAR	CH-47 Chinook
Military	0%	0%	100%
Civil	50%	50%	0%

This analysis is intended only as an estimate of aircraft activity at TKA for the purpose of developing a noise contours. It does not include a detailed analysis of aircraft activity, but the operations numbers and runway assignments are reasonable for the model. While the existing and future operational scenarios may not be exactly as we have predicted, any inaccuracies will not likely change the results and conclusions. Lacking any better data, this is a rational basis for operational scenarios for the existing and future activity at the airport for both fixed-wing and helicopter activity.

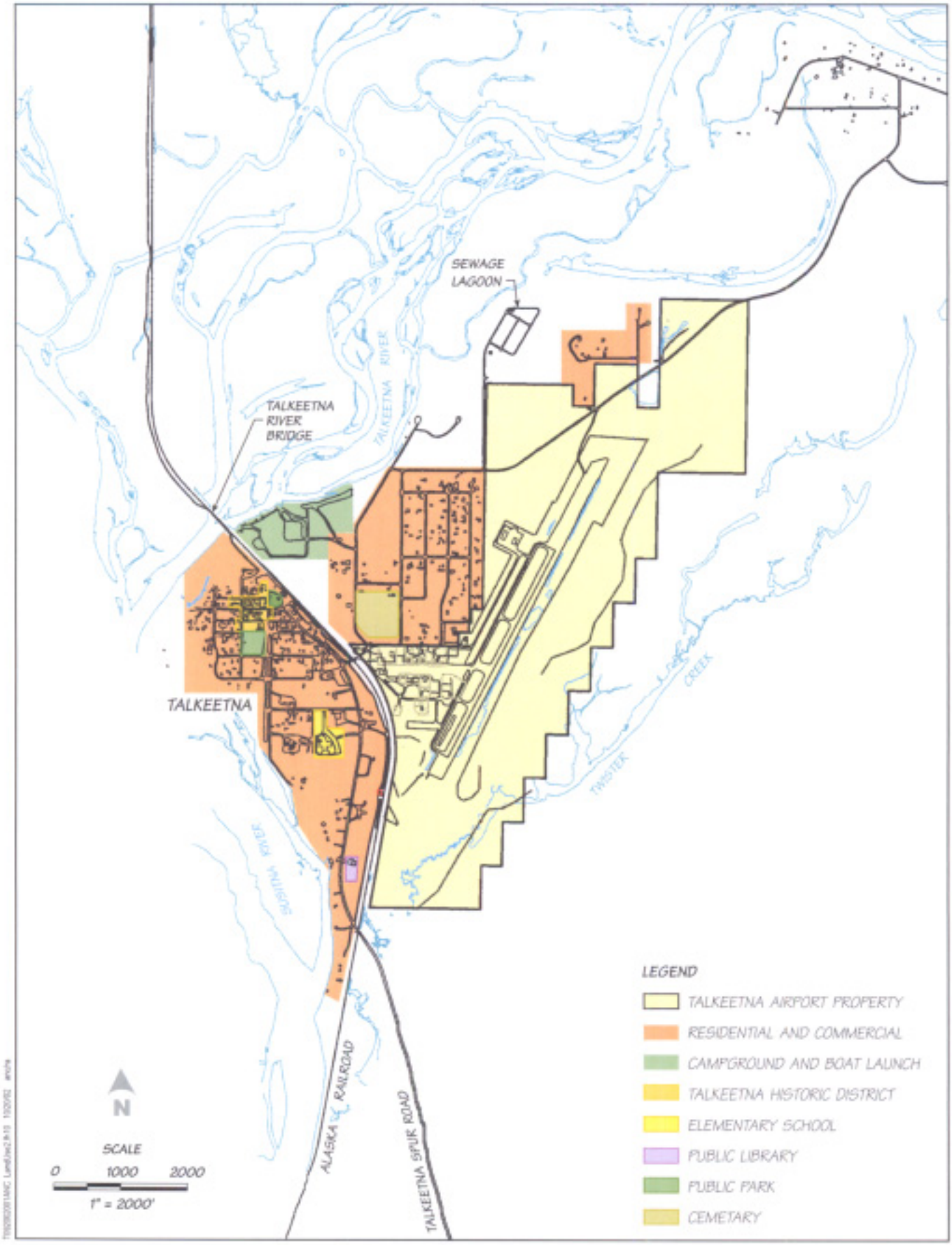


EXHIBIT 1
COMMUNITY AND LAND USE

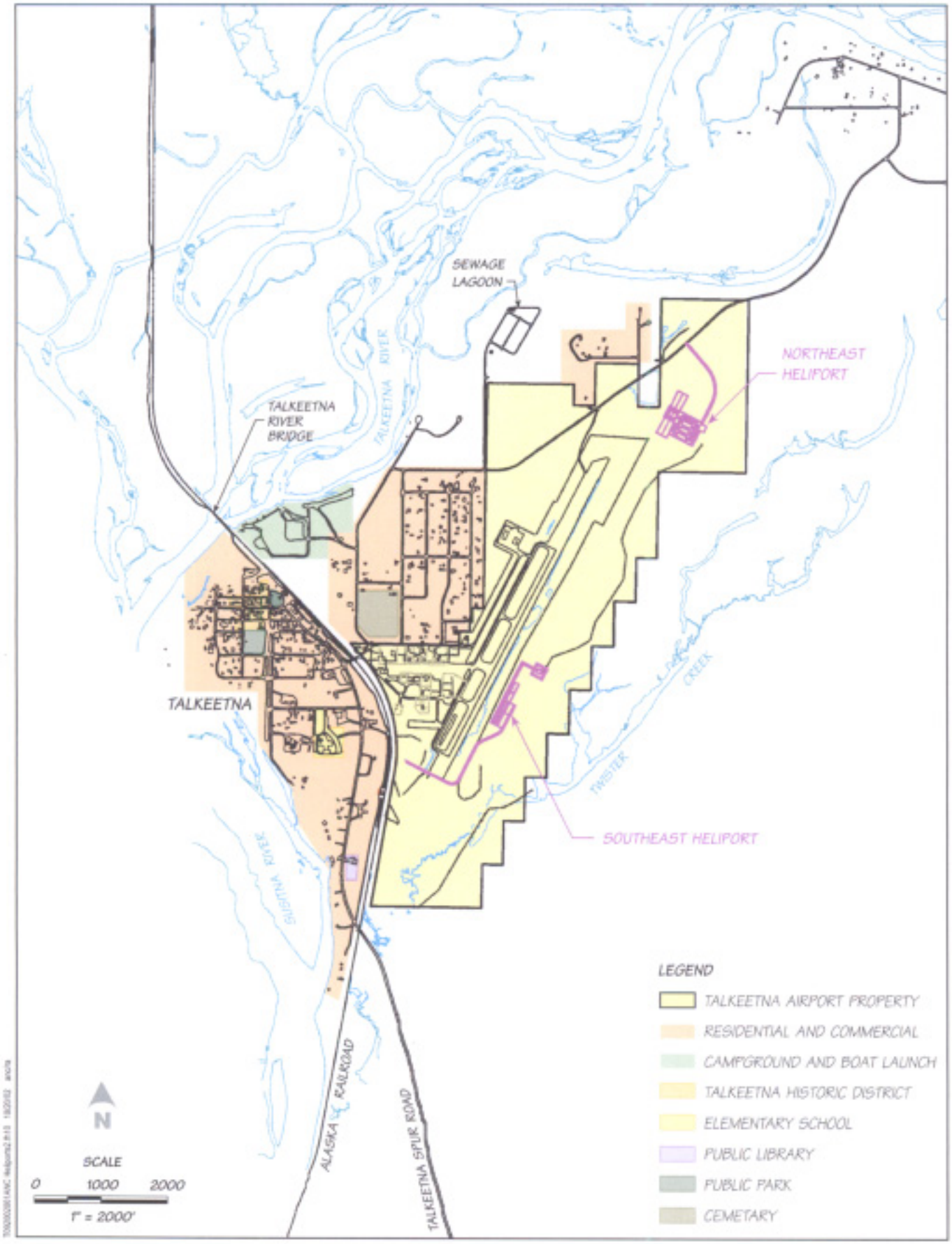


EXHIBIT 2
HELIPORT ALTERNATIVES

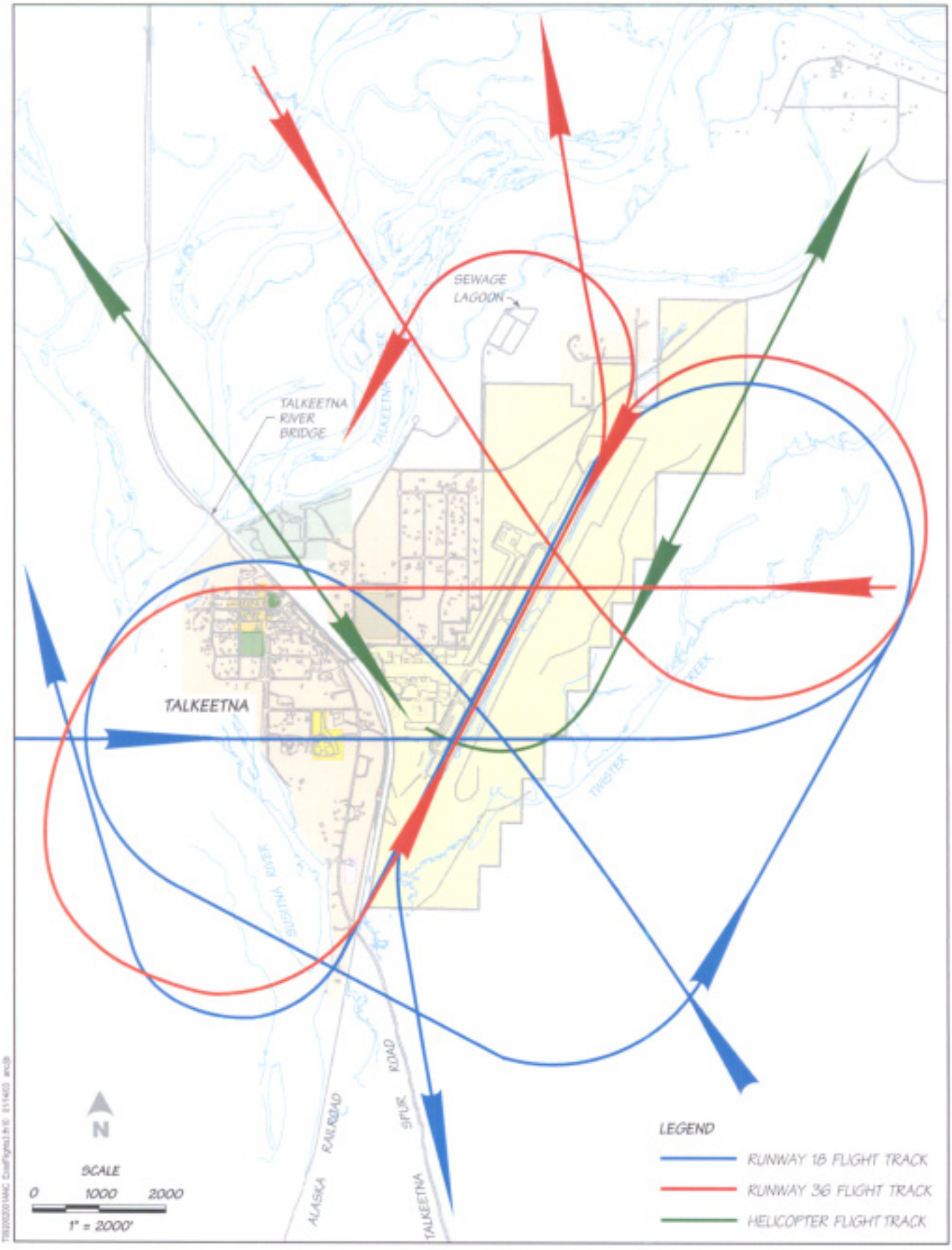


EXHIBIT 3
EXISTING FLIGHT TRACKS

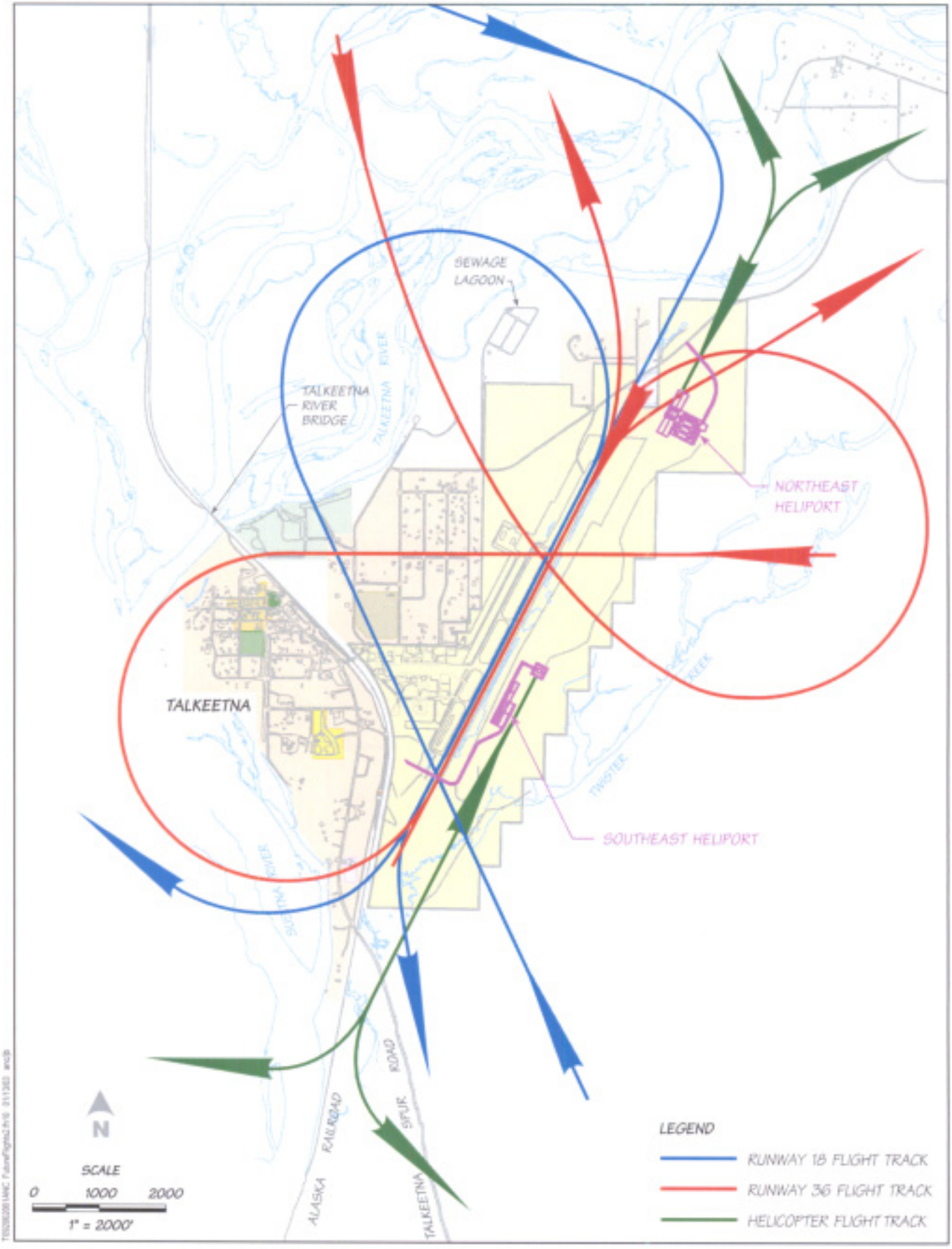


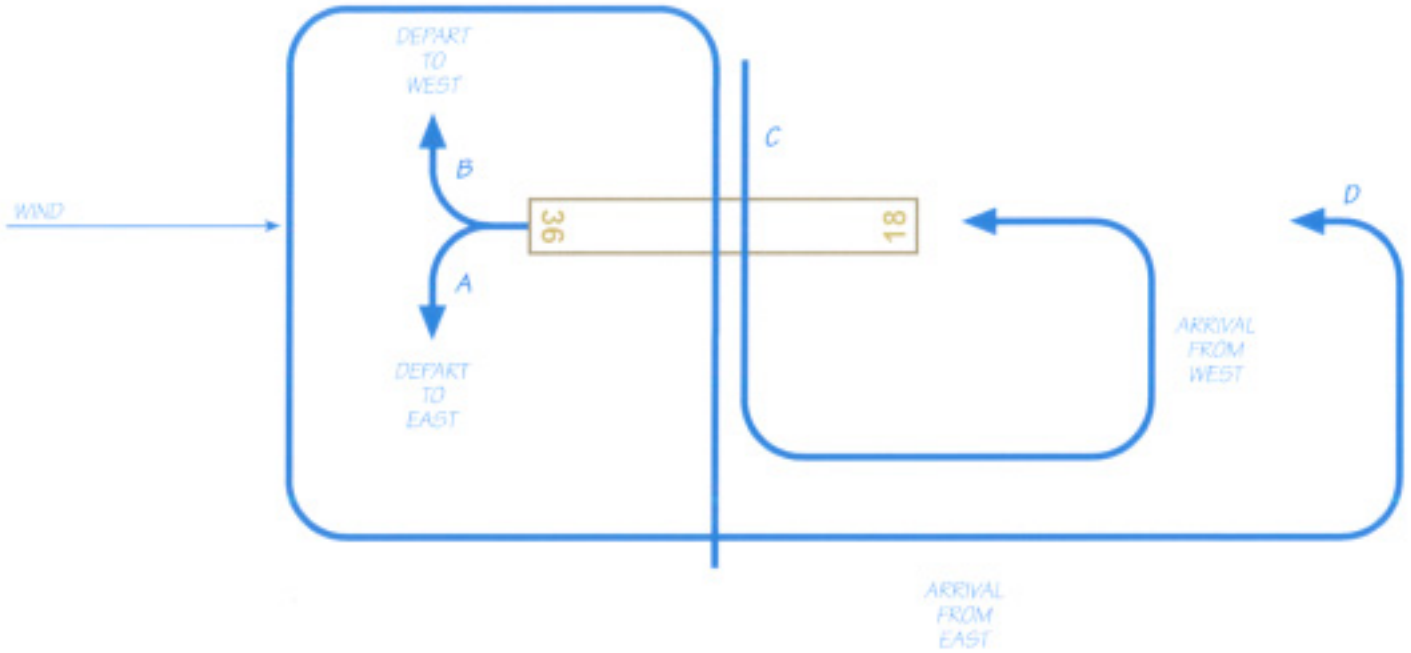
EXHIBIT 4
FUTURE FLIGHT TRACKS

PEAK SEASON

2000 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	28.8
B	63.6
C	63.6
D	28.8

ANNUAL AVERAGE

2000 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	7.3
B	16.1
C	16.1
D	7.3



NOTES:

1) ASSUME "TRIP A" IS ALL GA TO ANCHORAGE
2) ASSUME "TRIP B" IS ALL PART 135 TO DENALI
3) ASSUME "TRIP C" IS ALL PART 135 FROM DENALI
4) ASSUME "TRIP D" IS ALL GA FROM ANCHORAGE

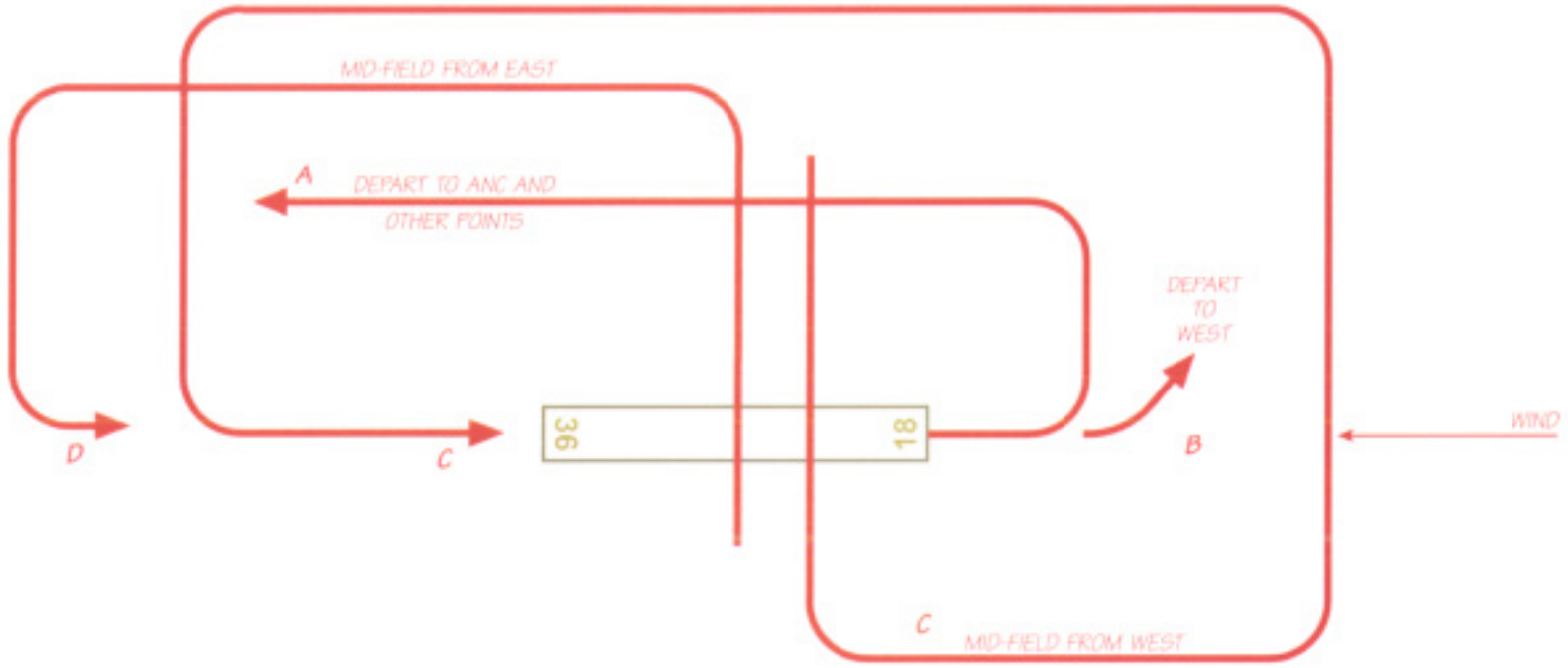
EXHIBIT 5
EXISTING FLIGHT TRACKS
Runway 18

PEAK SEASON

2000 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	3.2
B	7.1
C	7.1
D	3.2

ANNUAL AVERAGE

2000 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	2.6
B	5.7
C	5.7
D	2.6



NOTES:

1) ASSUME "TRIP A" IS ALL GA TO ANCHORAGE
2) ASSUME "TRIP B" IS ALL PART 135 TO DENALI
3) ASSUME "TRIP C" IS ALL PART 135 FROM DENALI
4) ASSUME "TRIP D" IS ALL GA FROM ANCHORAGE

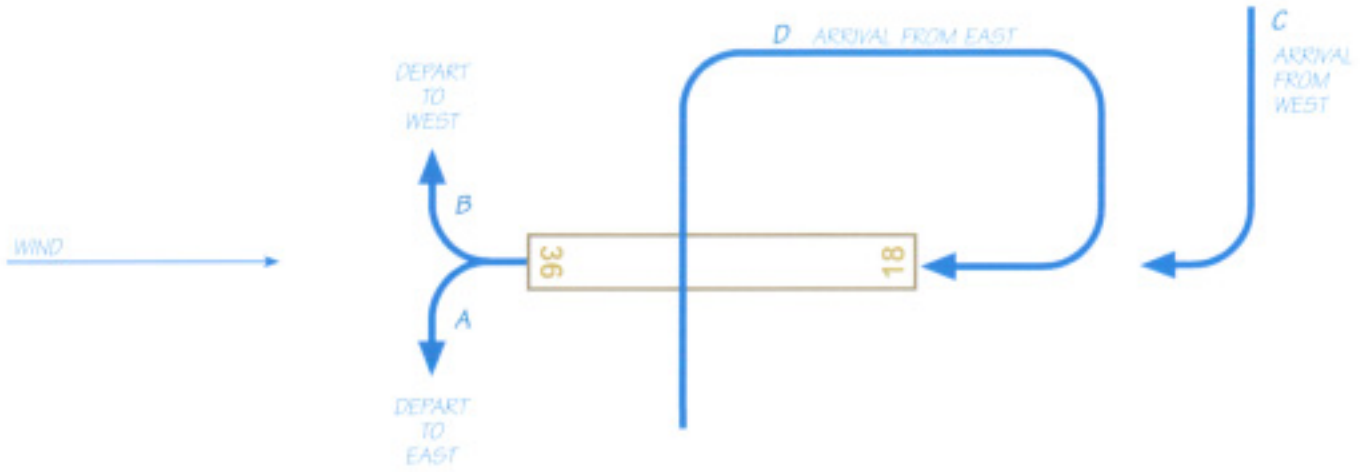
EXHIBIT 6
EXISTING FLIGHT TRACKS
Runway 36

PEAK SEASON

2015 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	39.6
B	132.4
C	132.4
D	39.6

ANNUAL AVERAGE

2015 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	10
B	33.6
C	10
D	33.6



NOTES:

1) RW 18 IS RIGHT HAND TRAFFIC
2) ASSUME "TRACK A" IS ALL GA TO ANCHORAGE
3) ASSUME "TRACK B" IS ALL PART 135 TO DENALI
4) ASSUME "TRACK C" IS ALL PART 135 FROM DENALI
5) ASSUME "TRACK D" IS ALL GA TRAFFIC FROM ANCHORAGE

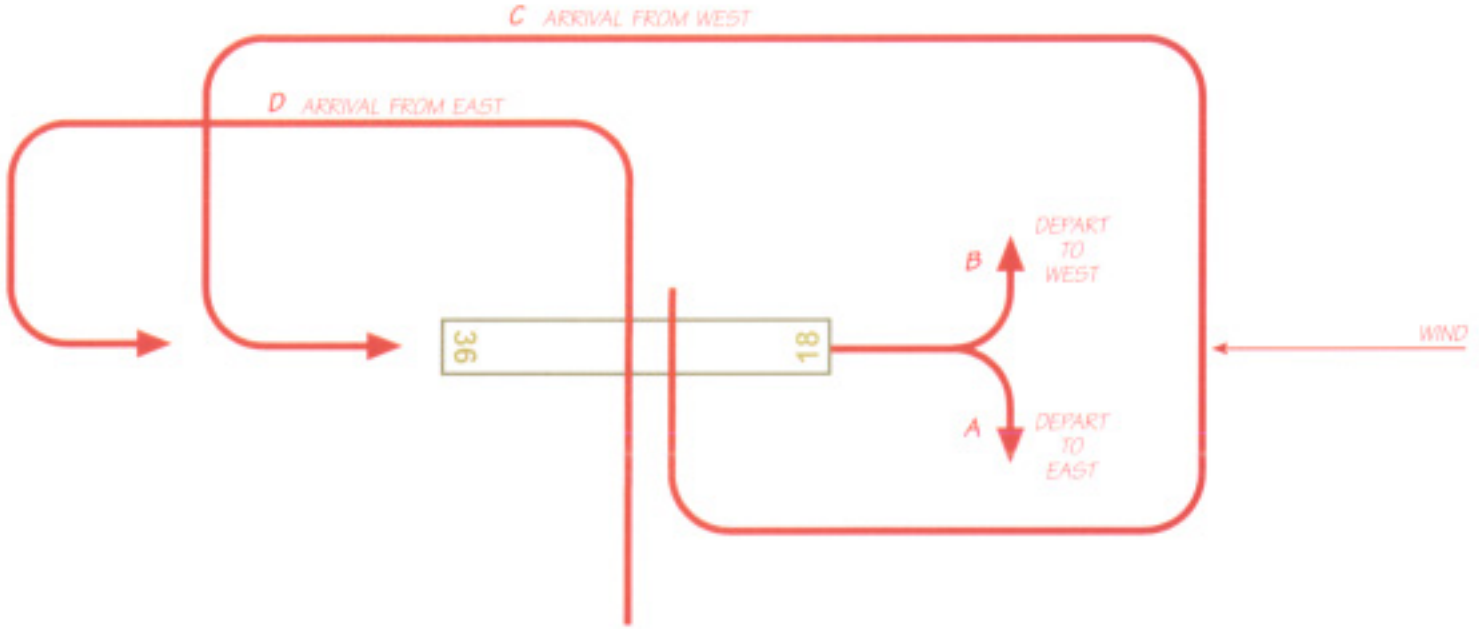
EXHIBIT 7
FUTURE FLIGHT TRACKS
Runway 18

PEAK SEASON

2015 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	4.4
B	14.7
C	14.7
D	4.4

ANNUAL AVERAGE

2015 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	3.5
B	11.8
C	11.8
D	3.5



NOTES:

1) ASSUME "TRACK A" IS GA TRAFFIC
2) ASSUME "TRACK B" IS PART 135
3) ASSUME "TRACK C" IS PART 135
4) ASSUME "TRACK D" IS GA TRAFFIC

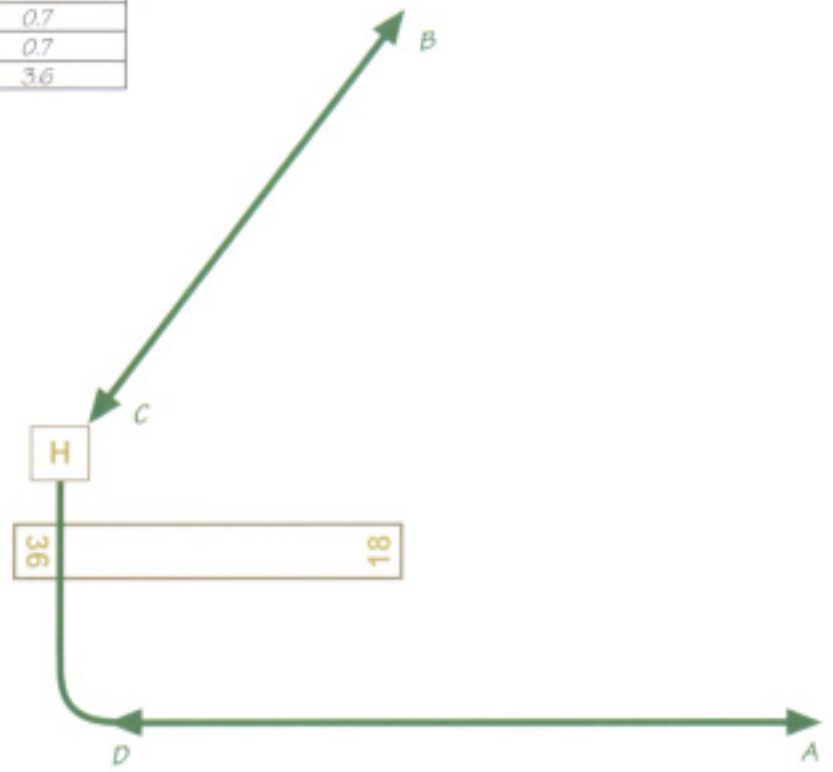
EXHIBIT 8
FUTURE FLIGHT TRACKS
Runway 36

PEAK SEASON

2000 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	14.5
B	2.8
C	2.8
D	14.5

ANNUAL AVERAGE

2000 OPERATIONS SUMMARY	
TRACK	# OF OPS/DAY
A	3.6
B	0.7
C	0.7
D	3.6



NOTES:

1) ASSUME "TRACK A" IS ALL PART 135 EAST BOUND
2) ASSUME "TRACK B" IS MILITARY HELICOPTER AND NATIONAL PARK SERVICE DESTINED FOR DENALI
3) ASSUME "TRACK C" IS MILITARY HELICOPTER AND NATIONAL PARK SERVICE ARRIVING FROM DENALI
4) ASSUME "TRACK D" IS PART 135 ARRIVING FROM THE EAST

EXHIBIT 9
EXISTING HELICOPTER FLIGHT TRACKS

PEAK SEASON

2015 OPERATIONS SUMMARY		
TRACK	# OF MILITARY OPS/DAY	# OF CIVIL OPS/DAY
A	2.8	24.5
B	2.8	24.5

ANNUAL AVERAGE

2015 OPERATIONS SUMMARY		
TRACK	# OF MILITARY OPS/DAY	# OF CIVIL OPS/DAY
A	0.7	1.5
B	0.7	1.5

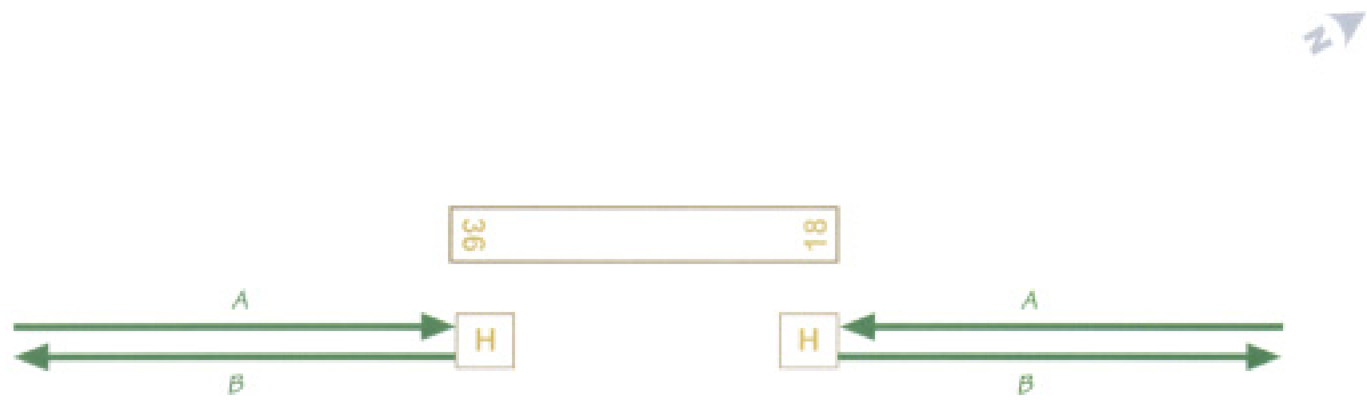
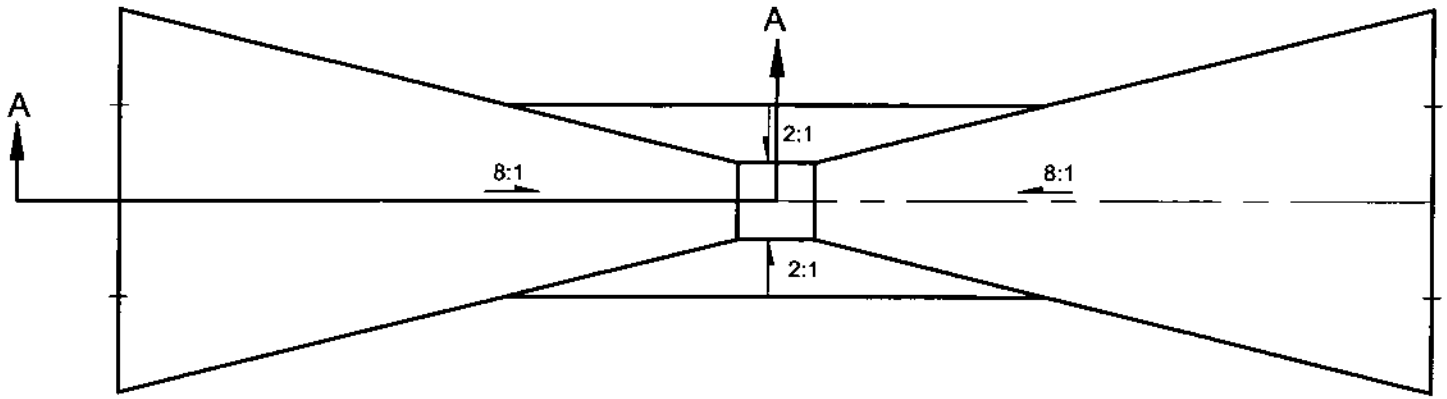


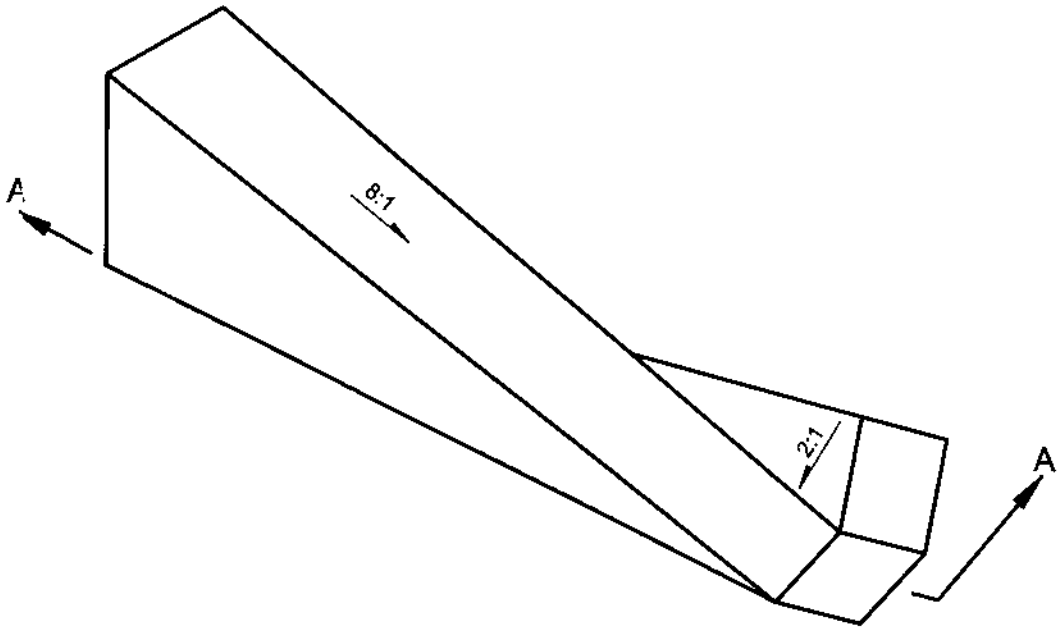
EXHIBIT 10

FUTURE HELICOPTER FLIGHT TRACKS

Appendix D
Part 77 Figure



FAR PART 77 SURFACE



ISOMETRIC VIEW OF SECTION A-A

DIMENSIONAL STANDARDS (FEET) HELIPORT IMAGINARY SURFACES	
PRIMARY SURFACE:	
WIDTH:	150
LENGTH	150
APPROACH SURFACE:	
INNER WIDTH:	150
OUTER WIDTH:	500
APPROACH SURFACE LENGTH:	4,000
APPROACH SLOPE:	8:1

CH2MHILL

Appendix E
Construction Cost Estimate

Talkeetna Airport Improvements, Phase II
Heliport Relocation Study
Rough Order of Magnitude Construction Costs

			QUANTITY		AMOUNT	
Item	Unit	Unit Price	ALT C	ALT E	ALT C	ALT E
Mob\Demob	L.S.	$100,000	1	1	$100,000	$100,000
DBE	L.S.	$5,000	1	1	$5,000	$5,000
Construction Surveying	L.S.	$25,000	1	1	$25,000	$25,000
Eng Field Office	L.S.	$8,000	1	1	$8,000	$8,000
Erosion & Pollution Control	L.S.	$10,000	1	1	$10,000	$10,000
Clearing	acre	$1,500	16.5	43.2	$24,816	$64,743
Unclassified Excavation	C.Y.	$3.50	0.0	25,527.0	$0	$89,345
Subbase	Ton	$8.00	25,972	51,054	$207,778	$408,432
Base Course	Ton	$13.00	7,889	7,754	$102,558	$100,800
Asphalt Concrete	Ton	$30.00	8,298	8,156	$248,944	$244,676
Asphalt Cement	Ton	$250.00	1,660	1,631	$414,906	$407,794
Tie-down Anchors	Each	$150	24	24	$3,600	$3,600
PCC pavement	S.Y.	$110.00	8,241	7,022	$906,486	$772,444
Heliport Lighting	L.S.	$30,000.00	1	1	$30,000	$30,000
Culvert Pipe	Each	$2,000.00	10	5	$20,000	$10,000
Security Fence & Gate	L.F.	$30.00	75	1,300	$2,250	$39,000
Wind Sock	Each	$10,000.00	0	1	$0	$10,000
				Subtotal	$2,109,338	$2,328,834
				Engineering (15%)	$316,401	$349,325
				10% Contingency	$210,934	$232,883
				Total	**$2,636,672**	**$2,911,042**